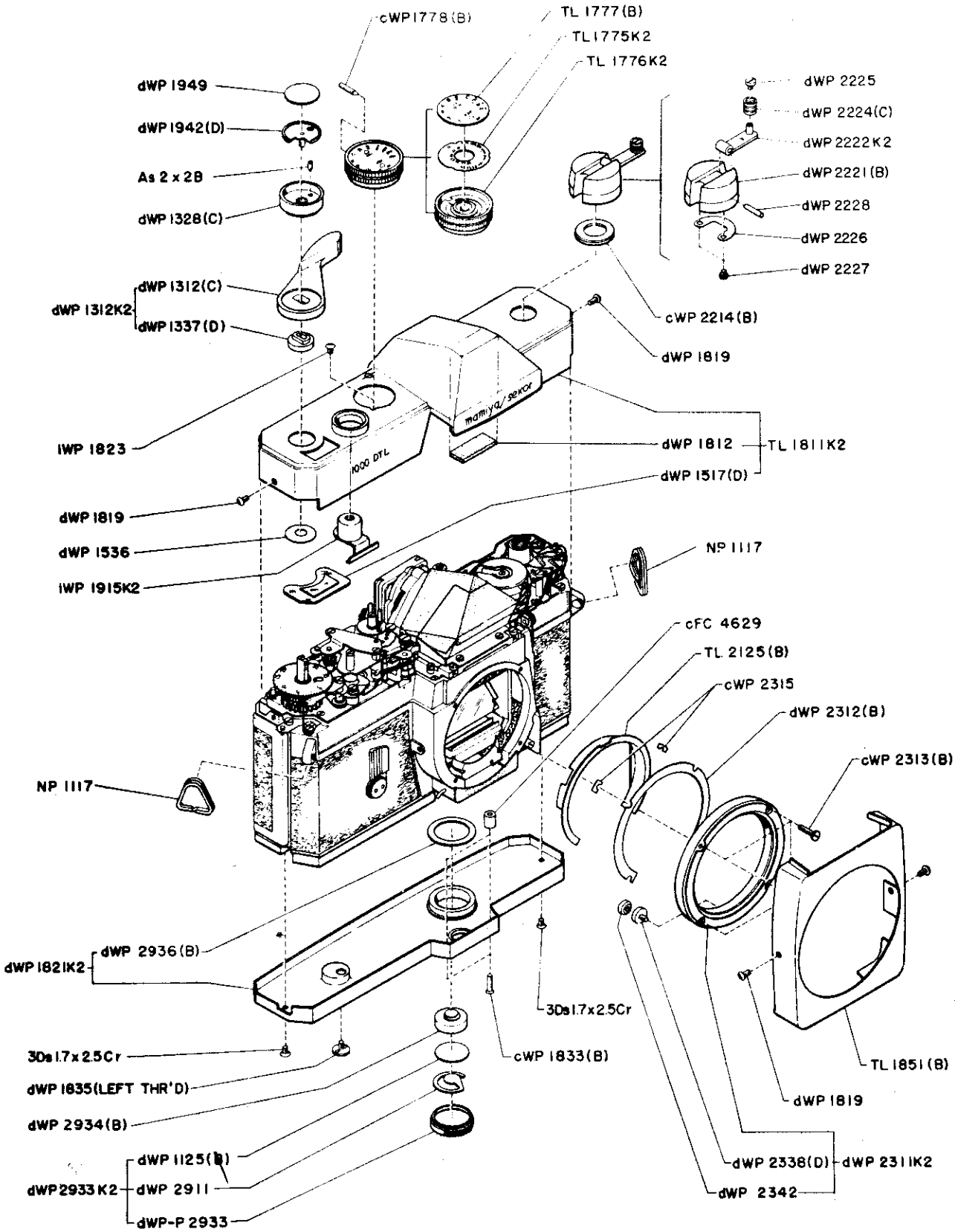
SERVICE MANUAL

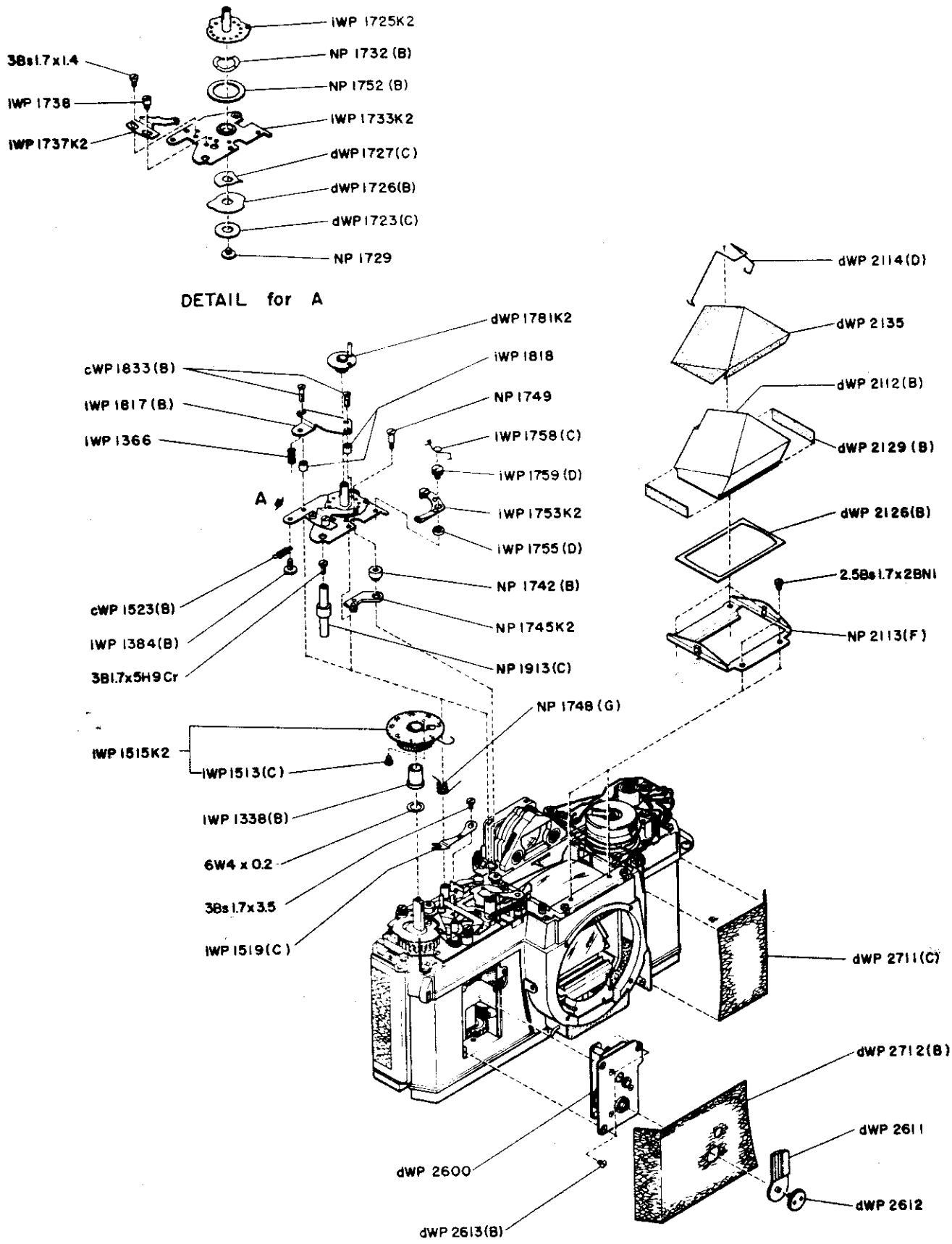
EXPLODED VIEWS

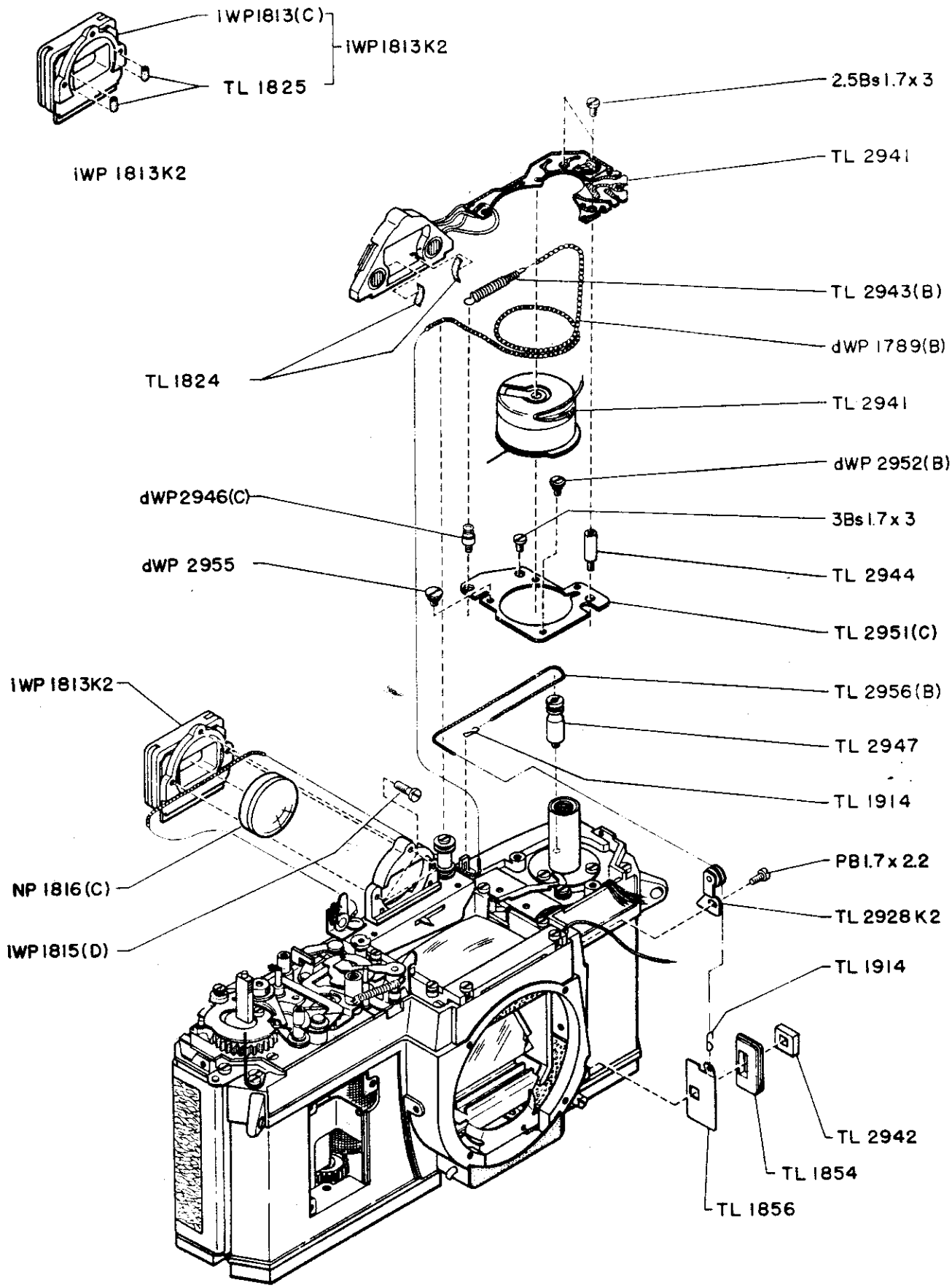
for

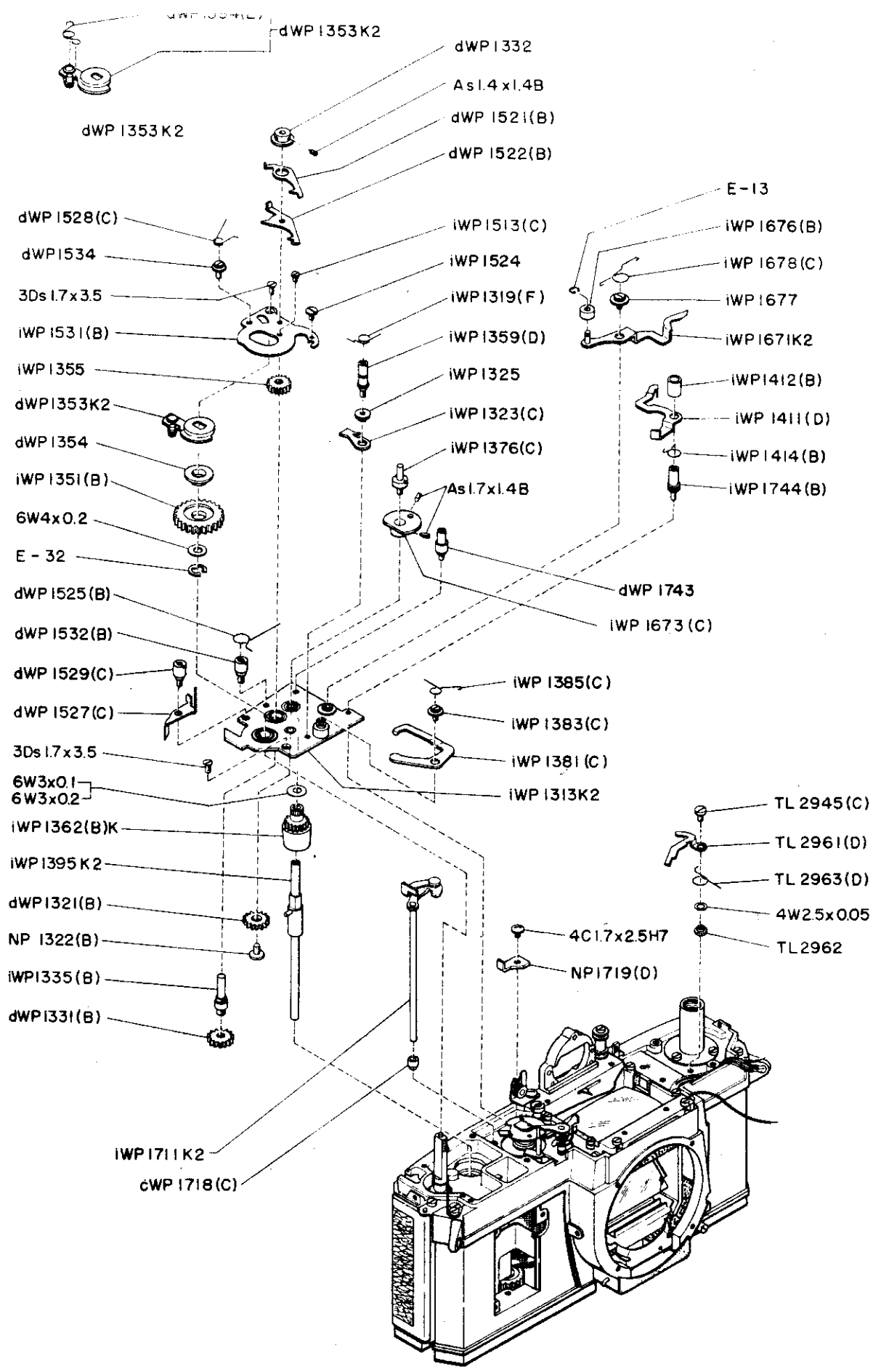
mamiya/sekor 1000DTL and 500DTL

MAMIYA CAMERA CO., LTD.
TOKYO JAPAN


cWP1778(B)
TL 1777(B)
TL1775K2
TL 1776K2
dWP 1949
dWP1942(D)
As 2 x 28
dWP1328(C)
dWP 2225
dWP 2224(C)
dWP 2222K2
dWP2221(B)
dWP 2228
dWP 2226
dWP 2227
dWP1312K2
dWP1312(C)
dWP1337(D)
cWP 2214(B)
dWP 1819
IWP 1823
mamiya/sekor
1000 DTL
dWP 1812
TL 1811K2
dWP 1517(D)
dWP 1819
dWP 1536
IWP 1915K2
NP 1117
cFC 4629
TL 2125(B)
cWP 2315
dWP 2312(B)
cWP 2313(B)
NP 1117
dWP1821K2
dWP 2936(B)
3Ds1.7x2.5Cr
cWP 1833(B)
TL 1851(B)
dWP 1819
3Ds1.7x2.5Cr
dWP 1635(LEFT THR'D)
dWP 2934(B)
dWP2933K2
dWP 1125(B)
dWP 2911
dWP-P 2933
dWP 2338(D)
dWP 2311K2
dWP 2342


iWP 1725K2
NP 1732 (B)
NP 1752 (B)
iWP 1733K2
dWP 1727(C)
dWP 1726(B)
dWP 1723(C)
NP 1729
38s1.7x1.4
iWP 1738
iWP 1737K2
DETAIL for A
dWP 1781K2
iWP 1818
NP 1749
iWP 1758(C)
iWP 1759(D)
iWP 1753K2
iWP 1755(D)
NP 1742(B)
NP 1745K2
NP 1913(C)
cWP 1833(B)
iWP 1817(B)
iWP 1366
cWP 1523(B)
iWP 1384(B)
3B1.7x5H9Cr
A
NP 1748(G)
iWP 1515K2
iWP 1513(C)
iWP 1338(B)
6W4 x 0.2
38s1.7x3.5
iWP 1519(C)
dWP 2114(D)
dWP 2135
dWP 2112(B)
dWP 2129(B)
dWP 2126(B)
2.5Bs1.7x2BNi
NP 2113(F)
dWP 2711(C)
dWP 2712(B)
dWP 2611
dWP 2612
dWP 2600
dWP 2613(B)


1WP1813(C)
1WP1813K2
TL 1825
1WP 1813K2
2.5Bs1.7x3
TL 2941
TL 2943(B)
dWP 1789(B)
TL 1824
TL 2941
dWP 2952(B)
dWP2946(C)
3Bs1.7x3
dWP 2955
TL 2944
TL 2951(C)
1WP 1813K2
TL 2956(B)
TL 2947
TL 1914
PB1.7x2.2
NP 1816(C)
TL 2928K2
1WP1815(D)
TL 1914
TL 2942
TL 1854
TL 1856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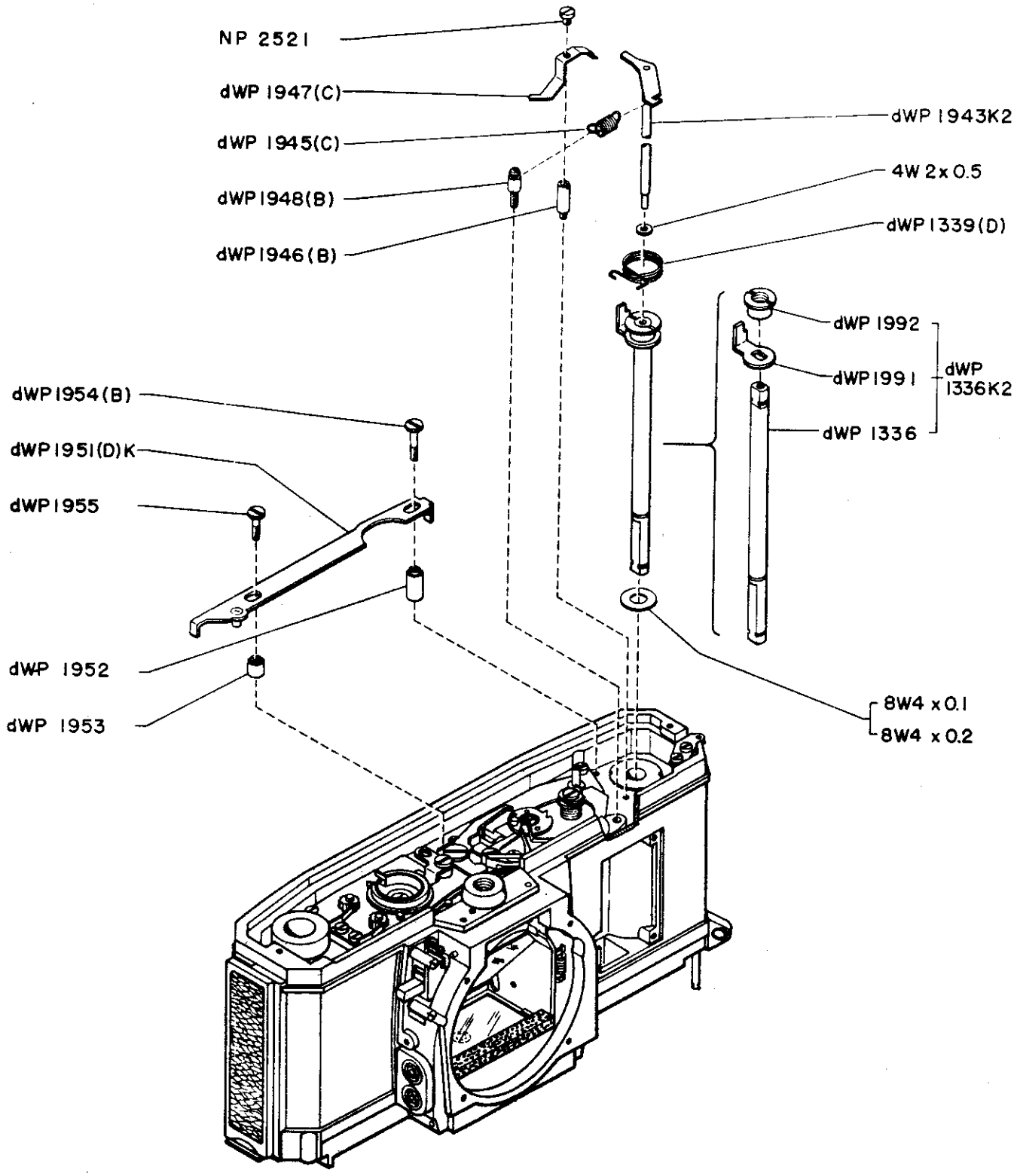
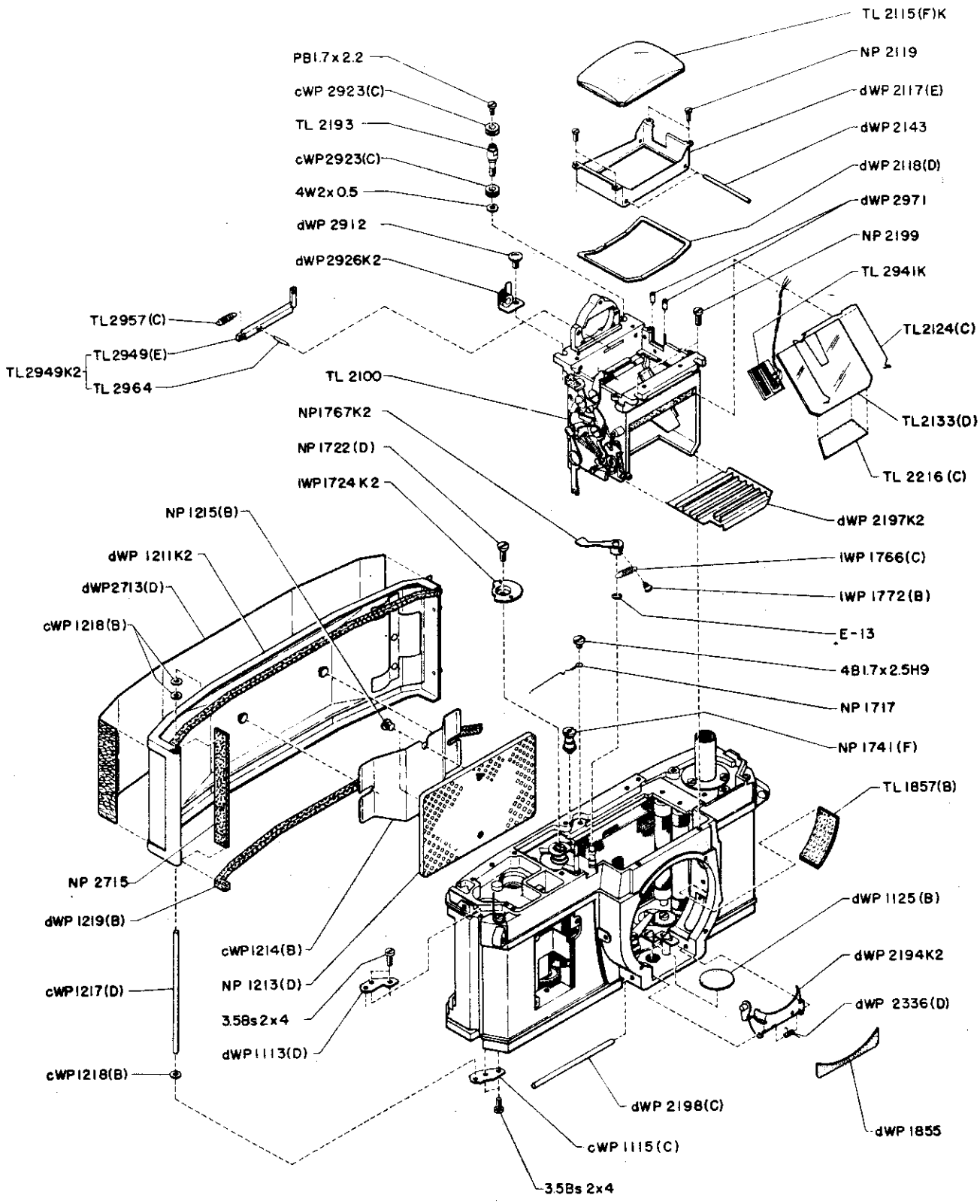
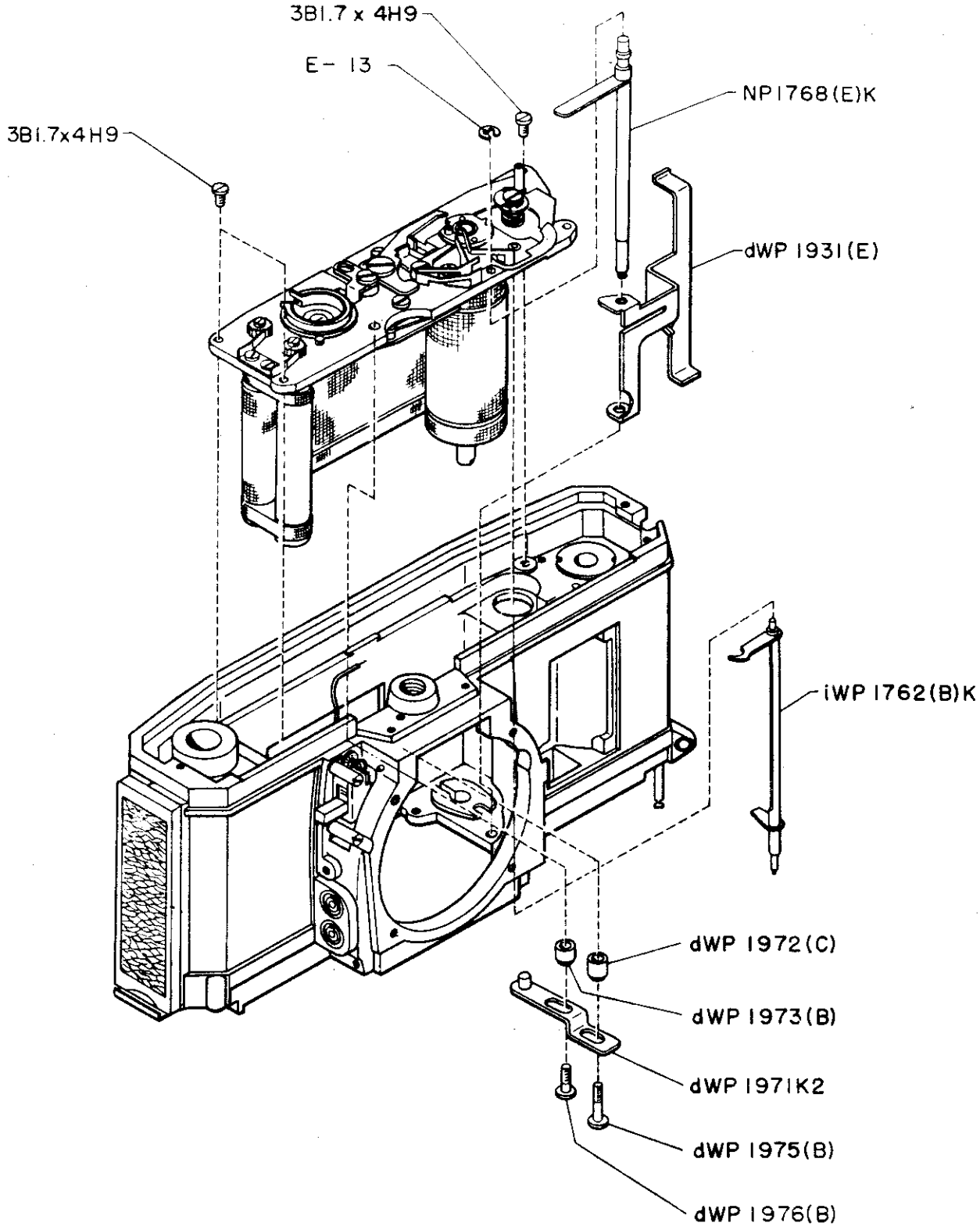
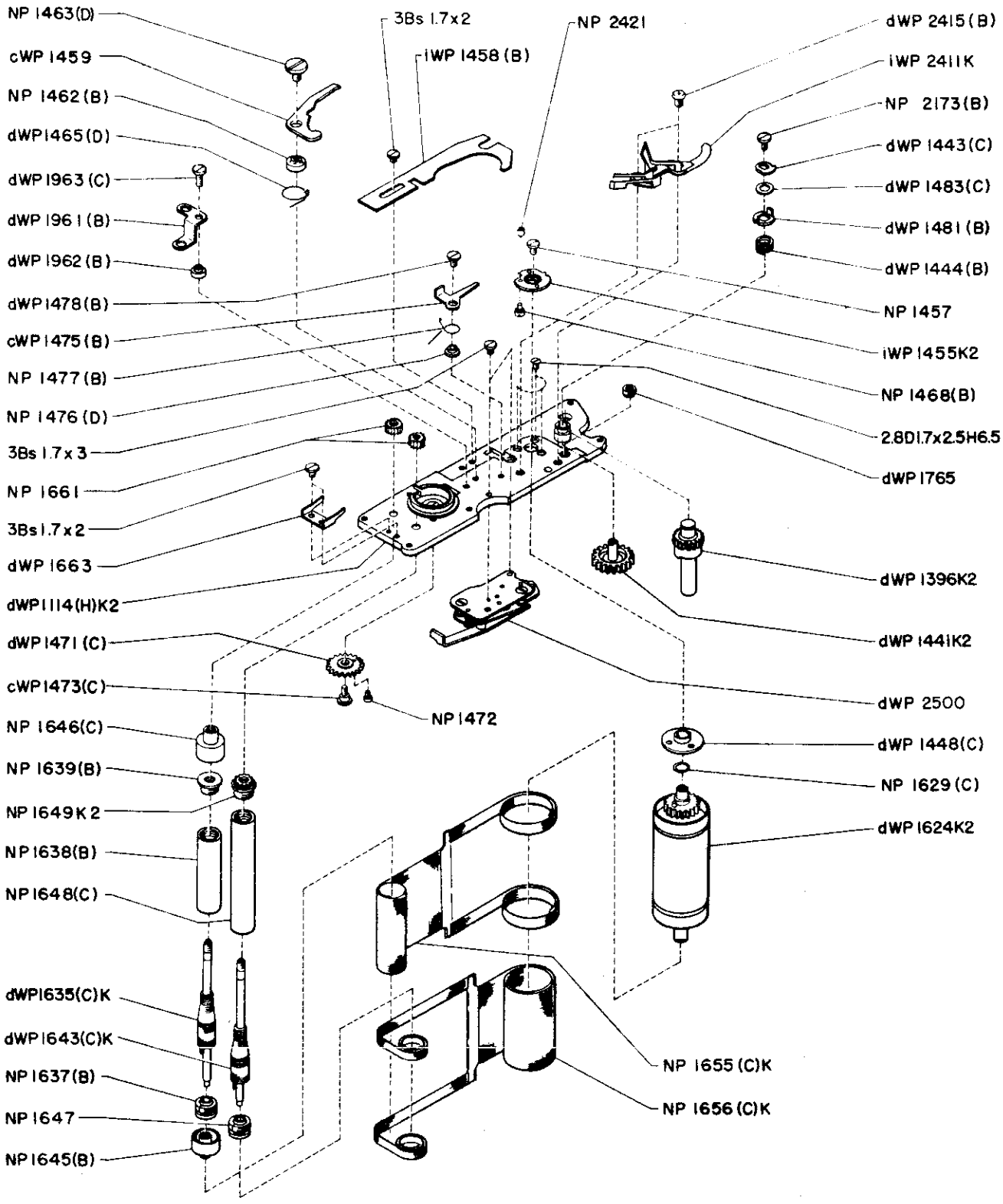
dWP1332
As1.4x1.4B
dWP1521(B)
dWP1522(B)
dWP1353K2
dWP1528(C)
dWP1534
3Ds1.7x3.5
iWP1531(B)
iWP1355
dWP1353K2
dWP1354
iWP1351(B)
6W4x0.2
E-32
dWP1525(B)
dWP1532(B)
dWP1529(C)
dWP1527(C)
3Ds1.7x3.5
6W3x0.1
6W3x0.2
iWP1362(B)K
iWP1395K2
dWP1321(B)
NP1322(B)
iWP1335(B)
dWP1331(B)
iWP1711K2
dWP1718(C)
iWP1513(C)
iWP1524
iWP1319(F)
iWP1359(D)
iWP1325
iWP1323(C)
iWP1376(C)
As1.7x1.4B
dWP1743
iWP1673(C)
iWP1385(C)
iWP1383(C)
iWP1381(C)
iWP1313K2
E-13
iWP1676(B)
iWP1678(C)
iWP1677
iWP1671K2
iWP1412(B)
iWP1411(D)
iWP1414(B)
iWP1744(B)
TL2945(C)
TL2961(D)
TL2963(D)
4W2.5x0.05
TL2962
4C1.7x2.5H7
NP1719(D)


NP 2521
dWP 1947(C)
dWP 1945(C)
dWP 1948(B)
dWP 1946(B)
dWP 1943K2
4W 2x0.5
dWP 1339(D)
dWP 1992
dWP 1991
dWP 1336K2
dWP 1336
dWP 1954(B)
dWP 1951(D)K
dWP 1955
dWP 1952
dWP 1953
8W4 x0.1
8W4 x0.2


TL 2115(F)K
NP 2119
dWP 2117(E)
dWP 2143
dWP 2118(D)
dWP 2971
NP 2199
TL 2941K
TL2124(C)
TL2133(D)
TL 2216 (C)
dWP 2197K2
IWP 1766(C)
IWP 1772(B)
E-13
4B1.7x2.5H9
NP 1717
NP 1741(F)
TL 1857(B)
dWP 1125(B)
dWP 2194K2
dWP 2336(D)
dWP 1855
dWP 2198(C)
cWP 1115(C)
3.5Bs 2x4
PB1.7x2.2
cWP 2923(C)
TL 2193
cWP2923(C)
4W2x0.5
dWP 2912
dWP2926K2
TL2957(C)
TL2949K2
TL2949(E)
TL 2964
TL 2100
NP1767K2
NP 1722(D)
IWP1724K2
NP 1215(B)
dWP 1211K2
dWP2713(D)
cWP 1218(B)
NP 2715
dWP 1219(B)
cWP1217(D)
cWP1218(B)
cWP1214(B)
NP 1213(D)
3.5Bs 2x4
dWP1113(D)


3B1.7 x 4H9
E- 13
NP1768(E)K
3B1.7x4H9
dWP 1931(E)
iWP 1762(B)K
dWP 1972(C)
dWP 1973(B)
dWP 1971K2
dWP 1975(B)
dWP 1976(B)


NP 1463(D)
cWP 1459
NP 1462(B)
dWP1465(D)
dWP 1963 (C)
dWP 1961 (B)
dWP 1962 (B)
dWP1478(B)
cWP1475(B)
NP 1477(B)
NP 1476 (D)
3Bs 1.7x3
NP 1661
3Bs1.7x2
dWP 1663
dWP1114(H)K2
dWP1471 (C)
cWP1473(C)
NP 1646(C)
NP 1639(B)
NP 1649K2
NP1638(B)
NP1648(C)
dWP1635(C)K
dWP1643(C)K
NP1637(B)
NP1647
NP1645(B)
3Bs 1.7x2
iWP 1458 (B)
NP 2421
NP1472
dWP 2415 (B)
iWP 2411K
NP 2173(B)
dWP 1443(C)
dWP 1483(C)
dWP 1481 (B)
dWP 1444(B)
NP 1457
iWP 1455K2
NP 1468(B)
2.8D1.7x2.5H6.5
dWP1765
dWP 1396K2
dWP 1441K2
dWP 2500
dWP 1448(C)
NP 1629 (C)
dWP 1624K2
NP 1655 (C)K
NP 1656 (C)K

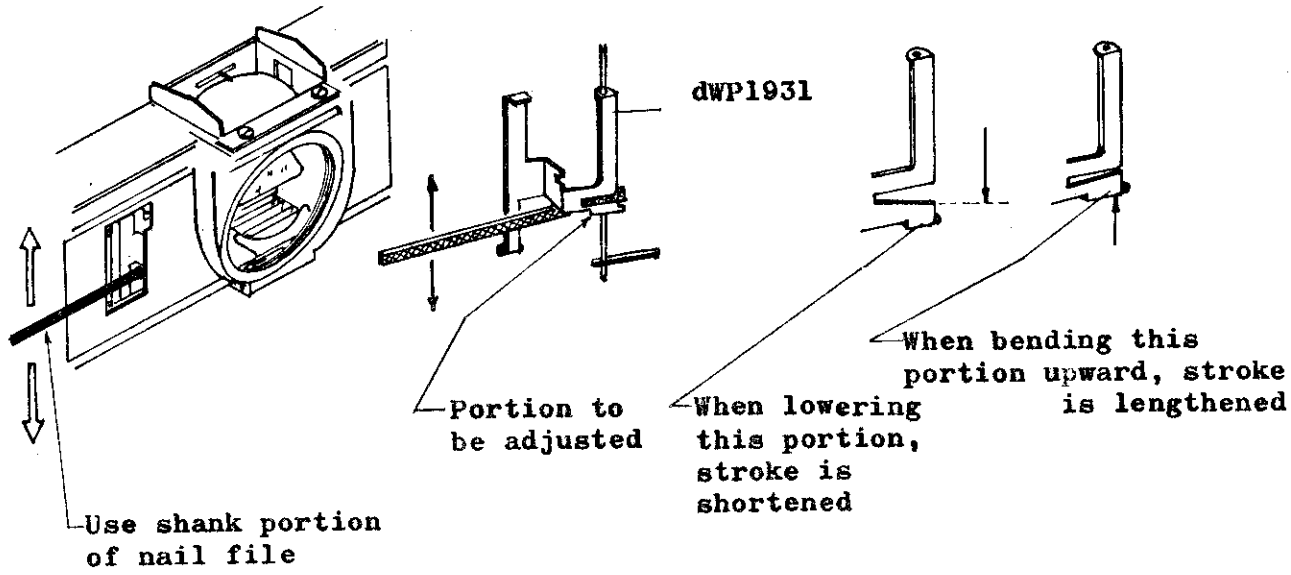
VII. Repair prodecures

1. When changing the self-timer

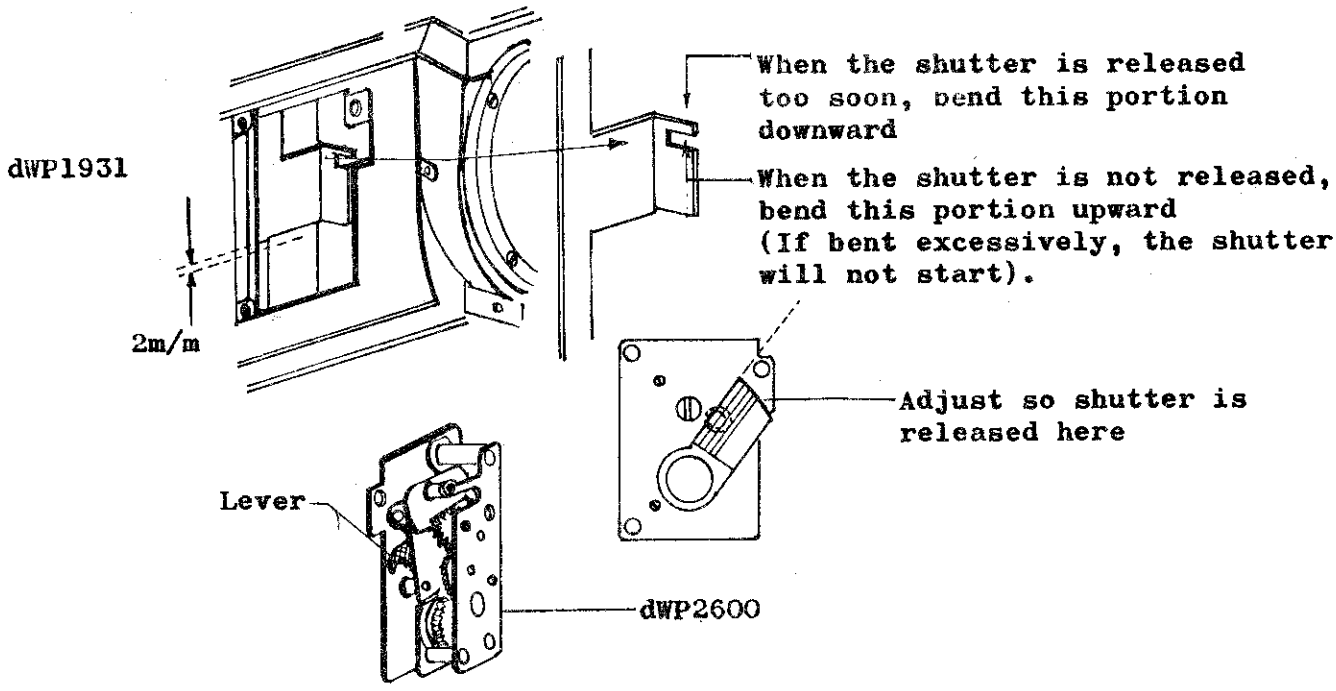
(1) Remove dWP2611 (self-timer lever) and dWP2612 (pin face screw) of dWP2600 (self-timer). Peel off the leatherette from the front cover toward the outside to the extent that the self-timer can be taken out; then extract three dWP2613 (screws) and remove dWP2600 (self-timer).

(2) Checking and adjusting the release stroke

Before installing the self-timer, check the release stroke. Wind the wind lever and push the shutter release rod. The release stroke must be 2mm until the mirror is raised and the shutter is operated. If the stroke is out of this range, adjust it as shown in the diagram.


dWP1931
When bending this portion upward, stroke is lengthened
Portion to be adjusted
When lowering this portion, stroke is shortened
Use shank portion of nail file

(3) When installing the self-timer, at first, push up the self-timer lever as shown in the diagram; then position and secure it with the screw. Wind the wind lever and set the self-timer. When pushing the self-timer button actnating the self-timer, the position where the shutter is released should be arranged so that the self-timer lever is at the self-timer button. If not, adjust it by bending dWP1931 (angle plate) as shown in the diagram. If the clearance is excessive, the self-timer will not start when the self-timer button is depressed, so avoid bending it too much.

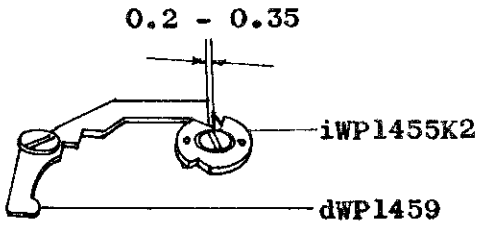

dWP1931
2m/m
When the shutter is released too soon, bend this portion downward
When the shutter is not released, bend this portion upward (If bent excessively, the shutter will not start).
Adjust so shutter is released here
Lever
dWP2600

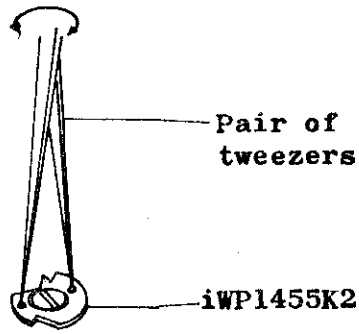
When installing, push up and position this lever

2. Replacing and adjusting iWP1455K2 (ratchet wheel assembly)

(1) Remove the bottom cover assembly

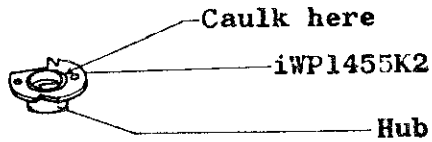
Fully wind the wind lever assembly, and check while the wind lever is under pressure. In this condition, the clearance between dWP1459 (pawl) and iWP1455K2 (ratchet wheel assembly) must be 0.2 - 3.5mm.





(2) To replace iWP1455K2 (ratchet wheel assembly), (ratchet wheel and hub are assembled by caulking them within a certain rotational range), insert the ratchet wheel in the curtain drum and rotate the ratchet wheel to create the above-mentioned condition, determine the position, then detach the ratchet wheel while maintaining that position, caulking the hub

circumference as shown in the diagram.



(3) Next, insert the ratchet wheel in the shaft, then tighten it with NP1457 (screw) and secure it with Diabond bonding agent.

(4) Reassemble the bottom cover assembly.

3. Replacing and adjusting the front curtain cam assembly

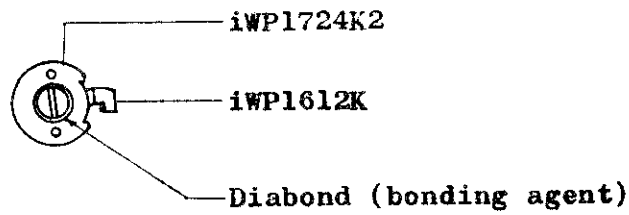
(1) Remove the top cover assembly

(2) Remove the base plate assembly

(3) Replacing iWP1724K2 (front curtain cam assembly)

The cam and the hub are caulked within a certain rotational range. The relative position of combination is different according to each camera, so primarily insert the front curtain cam assembly in the shaft; then--by turning the cam--set the position so that the lever of iWP1612K (rear curtain lever), located under the front cam assembly, is positioned in the center of the dented portion of the front curtain cam. Then detach the cam assembly maintaining that relative position, caulk them, and install them on the shaft tightening the group with

NP1722 (screw). Secure the screw with Diabond bonding agent.



(4) Next, reassemble the base plate assembly

(5) Check the shutter speed

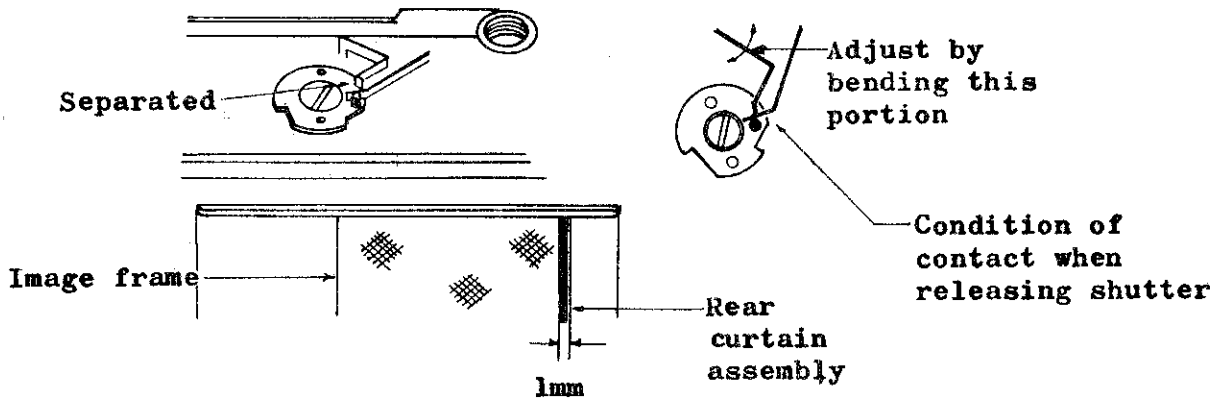
(6) Reassemble the top cover assembly

4. Adjusting the synchro

(1) Remove the bottom cover assembly

(2) To adjust the X-contact synchro, at first, open the back cover. On winding the wind lever, the X-contact should be separated (as shown in the diagram) at the point where NP1656K (rear curtain assembly) is extruded approximately 1mm from the image frame. Further, when winding the wind lever and releasing the shutter, the contact must be in a contacted condition. If not, check the time-lag by using a shutter tester after creating the above condition by bending the contact. The time-lag at that time should be in the range of 0.3ms - 9.5ms

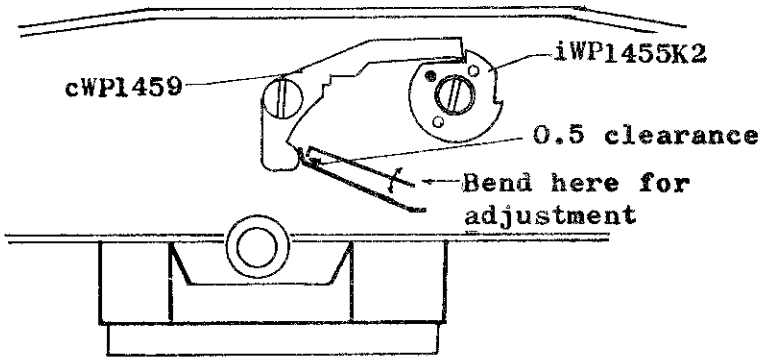
at a shutter speed of 1/60 second. If the time-lag is not within this range, readjust the contact by rebending it.

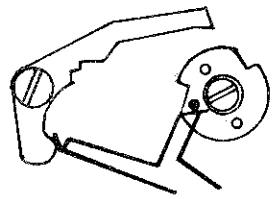


(3) Adjusting FP-contact synchro

Set the shutter at the highest speed; the contact should never be in a contacted condition while winding the wind lever. Clearance between contacts should be 0.5mm at the position where cWP 1459 (pawl) falls on iWP1455K2 (ratchet wheel) after winding the wind lever (as shown in the diagram). When releasing the shutter, contacts must be completely contacted and separated. This time, the time-lag must be in a range of 7ms - 15ms. If not in this range, bend the contact (as shown in the diagram) to adjust it. Contacting condition can be correctly

viewed when checking in a condition that the shutter speed is B and while depressing the release after winding the wind lever.





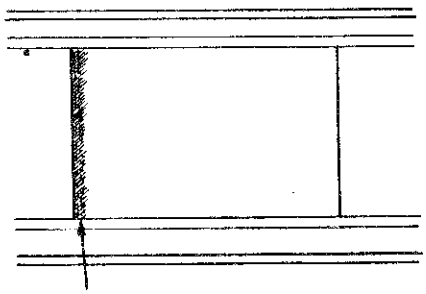
Contacting condition of contacts while depressing the release at B shutter speed

(4) Reassemble bottom cover assembly

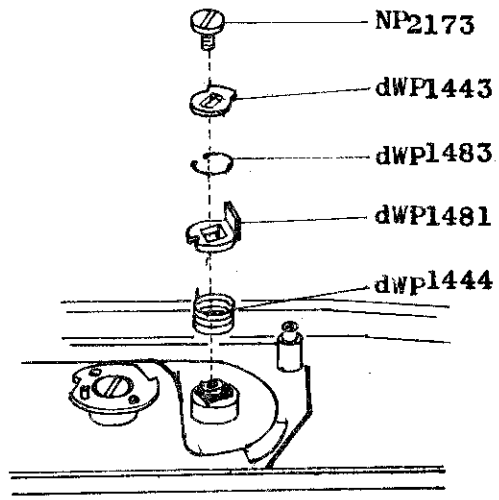
5. Repairing the front curtain and replacing spring

(1) Checking bound

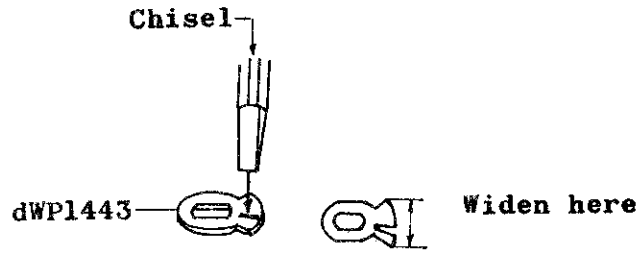
Open the back cover and face the camera towards bright side of room. Release the shutter, observing the image at shutter speed of 1/125. If the left side of the image appears to be gray, the front curtain is bound.



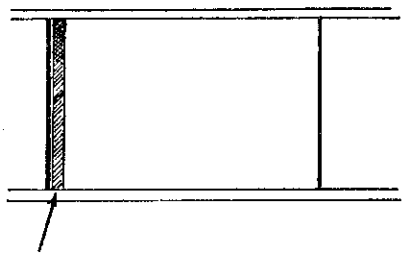
Front curtain bound



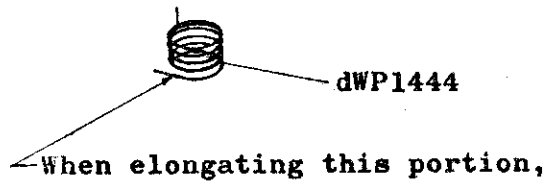
(2) When the front curtain is bound, remove the bottom cover, detach NP2173 (screw) and dWP1443 (braking disk), and then widen the sector portion of dWP1443 (braking disc) by chipping off a bit of that portion, using a chisel as shown in the diagram. Front curtain binding is diminished by changing the stopping position of dWP1481 (linking disc). When front curtain binding still exists after the above operation, replace dWP1444 (spring).



When changing dWP1444 (spring), while the shutter button is depressed with B shutter speed after winding the wind lever, the front curtain must be in the image frame. When the front curtain does not enter the image frame, dWP1444 (spring) is too strong; thus, elongate the spring, then reperform the above checking procedure.



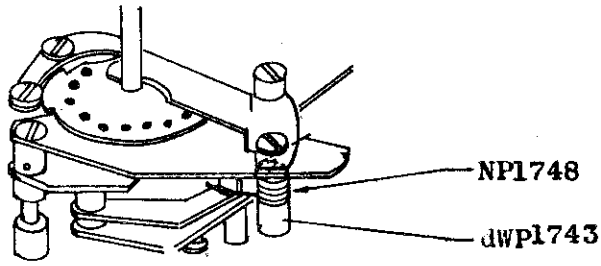
Front curtain cannot enter in the image frame due to strong spring action



(3) Reassemble bottom cover

6. Shutter speeds from 1 second to 1/1000 second become B

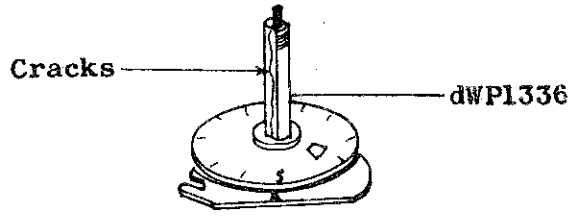
With the shutter in the above condition, in many cases the spring is detached. Remove the top cover, and rehook NP1748 (spring) which is attached to dWP1743 (post screw).

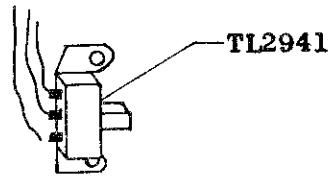


7. In case of incomplete housing of wind lever

When the wind lever of dWP1336K2 (wind lever shaft) is twisted due to cracks on its installing portion, the

housing becomes incomplete. In this case, the wind lever shaft must be replaced. For replacement, refer to Chapter 2 on Winding.





8. Defective A. S. changeover

This is due to a broken switch cord or defective soldering.

9. Defective movement of pointer on A

(1) Lead wire and resistor are contacted by dWP2211 (bush)

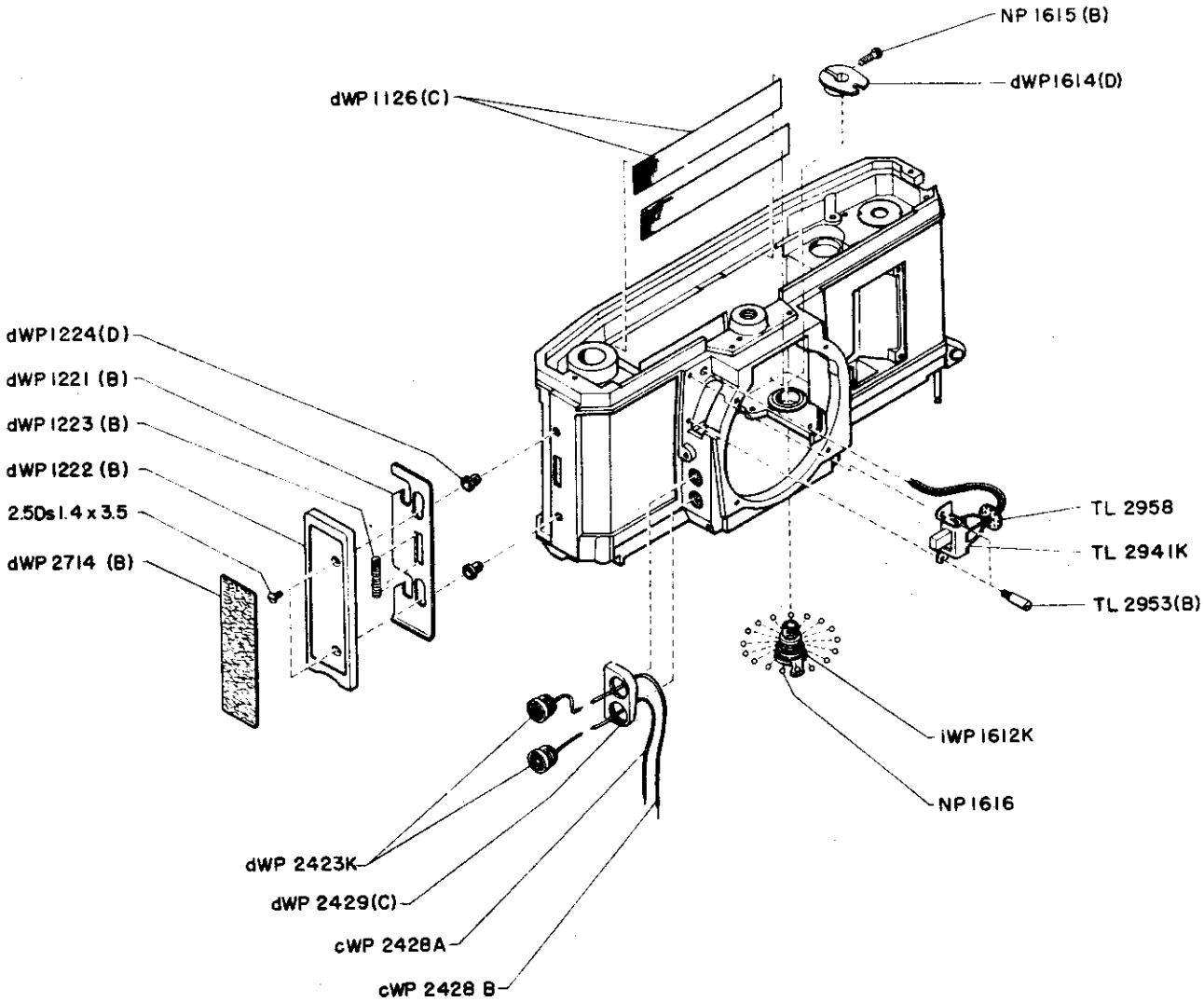
(2) Resistor R4, R5 and R6 on the resistor panel are contacted by the chainlet.

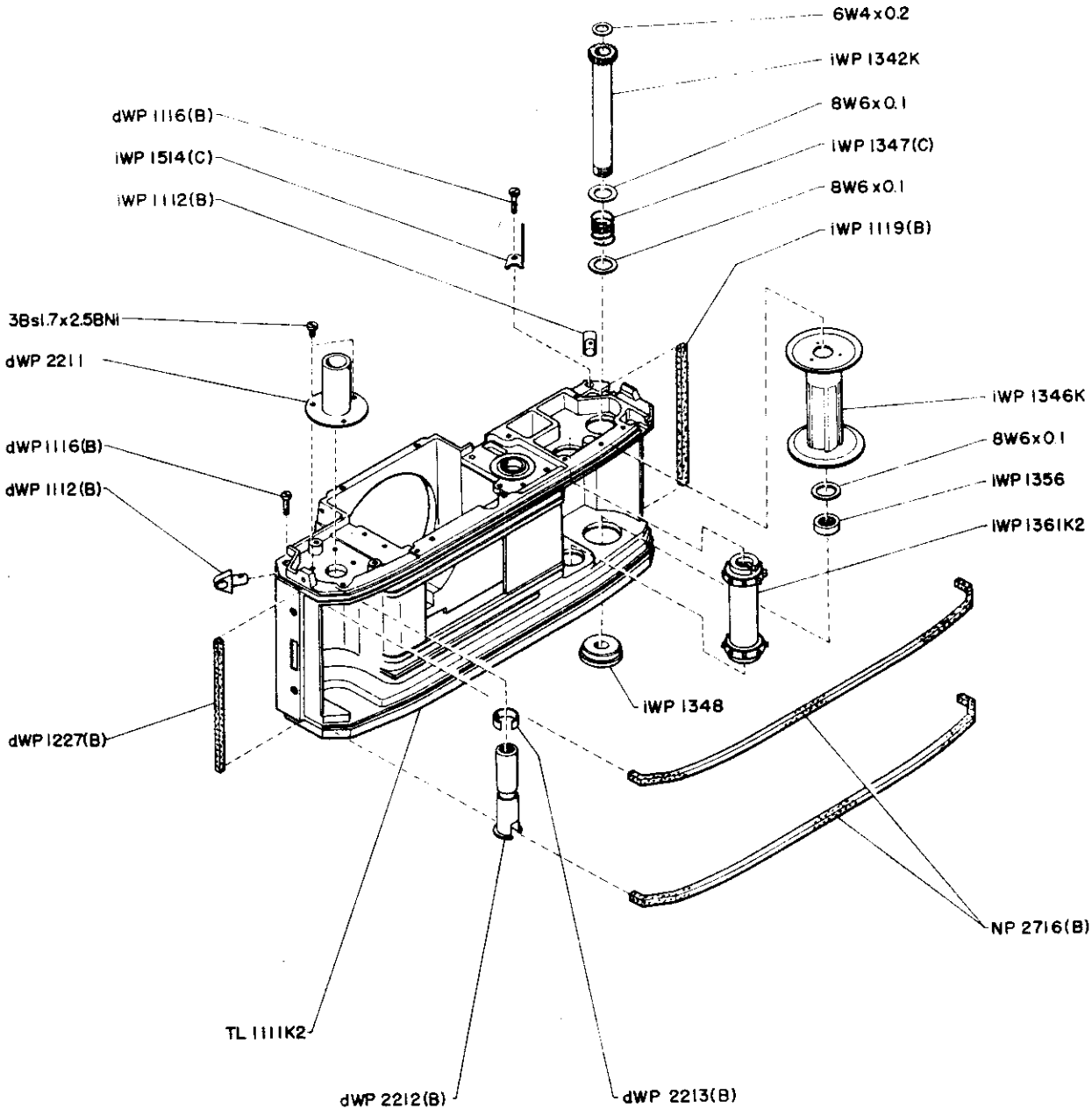
10. S pointer does not move

(1) Three S side lead wires, i.e., red, black and green are grounded to the body or broken.

(2) CdS under the mirror is cracked.

(3) Defective contact of dry cell.


NP 1615 (B)
dWP1614(D)
dWP1126(C)
dWP1224(D)
dWP1221 (B)
dWP1223 (B)
dWP1222 (B)
2.50s1.4x3.5
dWP 2714 (B)
TL 2958
TL 2941K
TL 2953(B)
iWP1612K
NP1616
dWP 2423K
dWP 2429(C)
cWP 2428A
cWP 2428 B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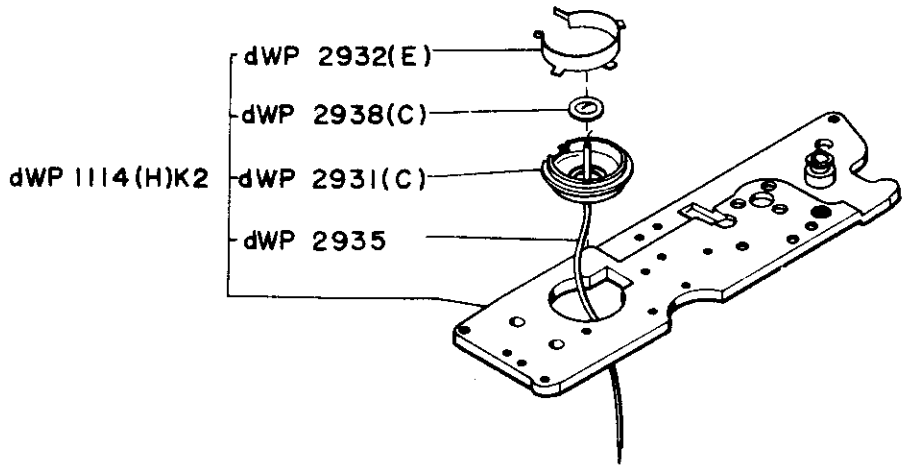
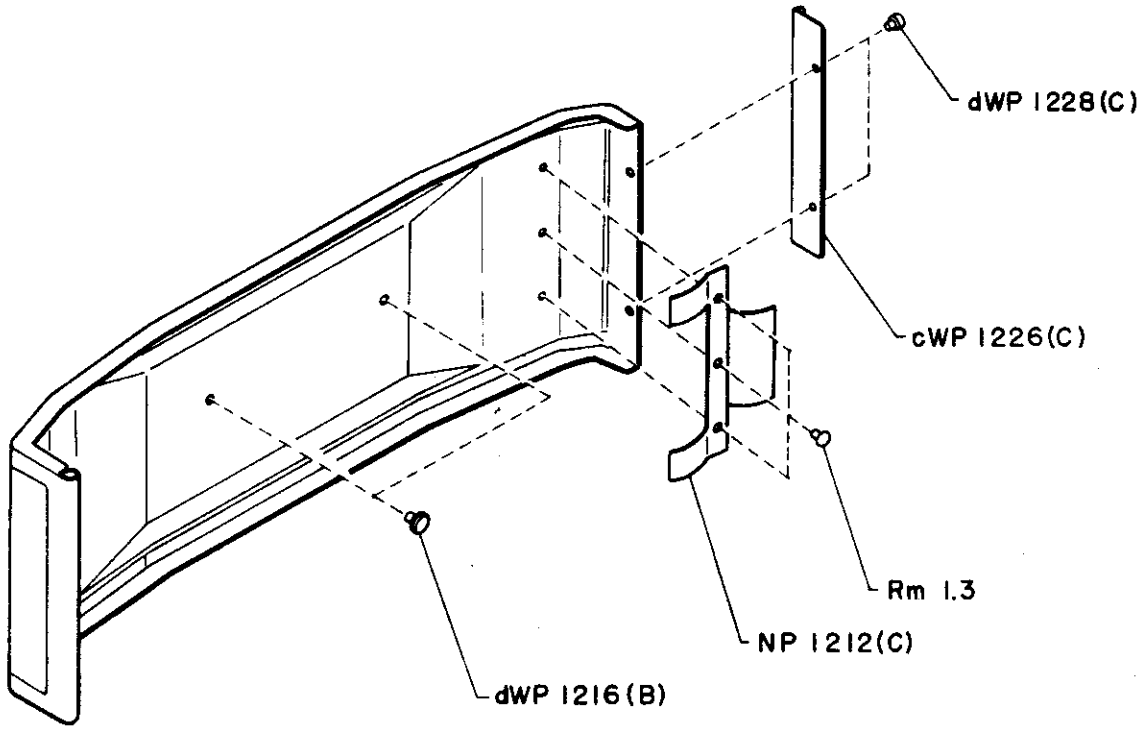
iWP 1342K
8W6x0.1
iWP 1347(C)
8W6x0.1
iWP 1119(B)
dWP 1116(B)
iWP 1514(C)
iWP 1112(B)
3Bsi.7x2.58Ni
dWP 2211
iWP 1346K
8W6x0.1
iWP 1356
iWP 1361K2
dWP 1116(B)
dWP 1112(B)
iWP 1348
dWP 1227(B)
NP 2716(B)
TL 1111K2
dWP 2212(B)
dWP 2213(B)

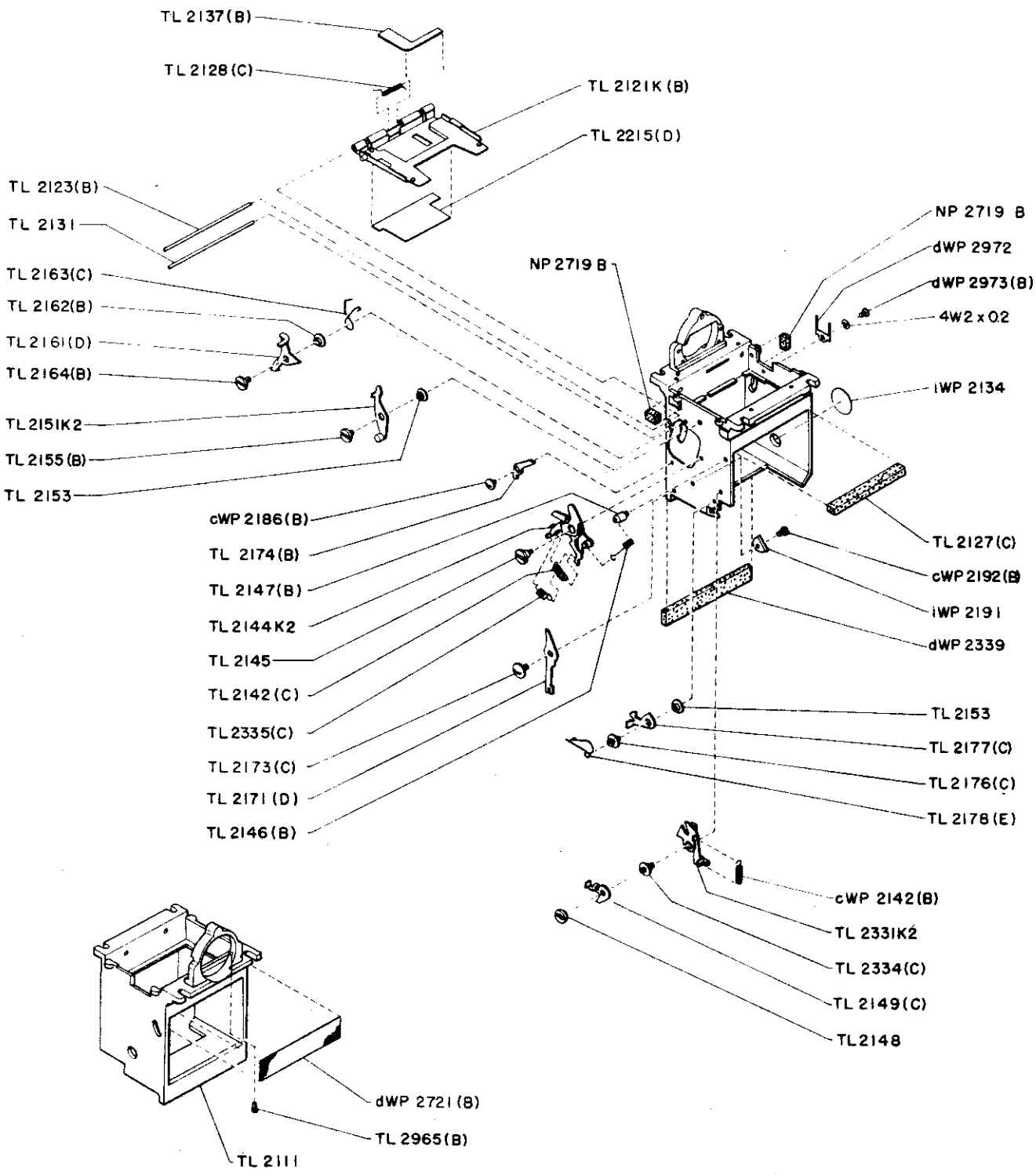


DETAIL for dWP 1114(H)K2

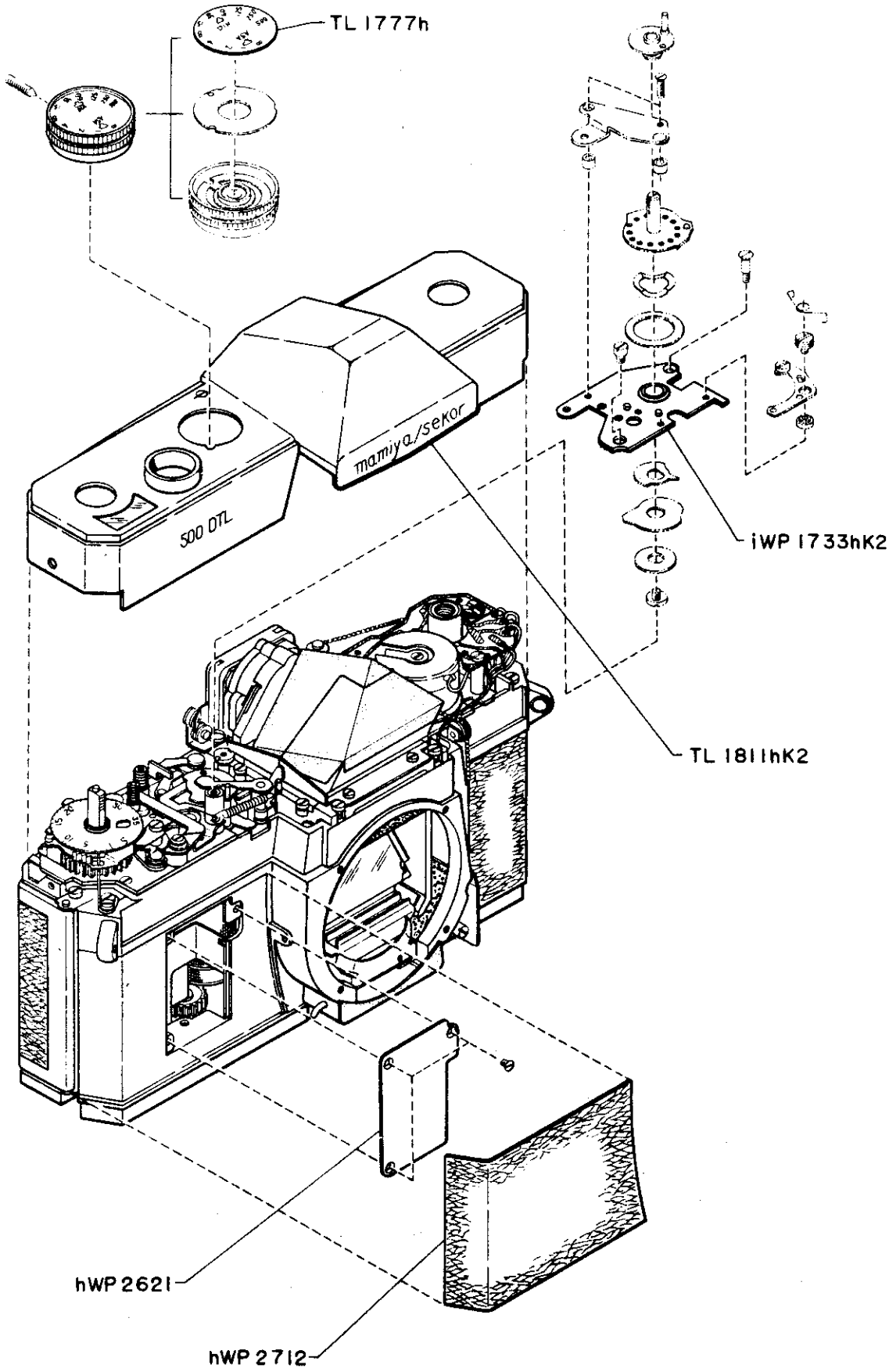


DETAIL for dWP 1211K2

DETAIL for TL 2100



The parts indicated by part numbers on this page, are exclusively used for the mamiya/sekor 500 DTL (without built-in selftimer).



SERVICE MANUAL

PARTS LIST

for

mamiya/sekor 1000DTL and 500DTL

MAMIYA CAMERA CO., LTD.
TOKYO JAPAN

PARTS LIST

METHOD OF REQUESTING SPARE PARTS FOR REPAIR USE

When ordering spare parts for repair purposes, mark the request in the following manner after referring to our parts lists.

Spare parts are divided as follows:

Not considered usuable for repairing x

Can be supplied ..... o

Not available individually but supplied as subassembled parts ..... x*

Can be supplied either as individual parts or as subassemblies ..... o*

NOTE:

When ordering spare parts, always type the complete code and numbers in the Parts No. column of the appropriate parts lists.

EXAMPLE:

(Model and nomenclature of camera)

Parts No.	**Description**	**Quantity**
TL 1856	Switch cover	5
TL 2121K(B)	Mirror plate assembly	2
iWP 2411K	Synchro contact assembly	4
dWP 2926K2	Pulley assembly	4
2.5Bs 1.7x2 BNi	Screw	20
4B 1.7x2.5 H9	Screw	20

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
TL 1111K2	Camera body assembly	1	10	x		
├ TL 1111	Camera body	1		x*		
└ iWP 1611	Bearing	1		x*		
dWP 1112(B)	Strap eyelet	2	10	o		
dWP 1113(D)	Hinge bearing	1	6	o		
dWP 1114(H)K2	Bottom base plate assembly	1	6 & 11	o		
├ dWP 1114(H)	Bottom base plate	1		x*		
├ dWP 1482	Boss	1		x*		
├ dWP 2931(C)	Battery housing	1	11	o*		
├ dWP 2932(E)	Contact	1	11	o*		
├ dWP 2935	Lead	1	11	o*		
└ dWP 2938(C)	Electrode	1	11	o*		
cWP 1115(C)	Hinge bearing	1	6	o		
dWP 1116(B)	Screw	2	10	o		
NP 1117	Strap loop	2	1	o		
iWP 1119(B)	Cushion	1	10	o		
dWP 1125(B)	Rubber disc	1	6	o		
dWP 1126(C)	Light baffle strip	2	9	o		
dWP 1211K2	Back cover assembly	1	6 & 11	o		
├ dWP 1211(F)	Back cover	1		x*		
├ NP 1212(C)	Cartridge depressor	1	11	o*		
├ dWP 1216(B)	Rivet	2	11	o*		
├ cWP 1226(C)	Flange plate	1	11	o*		
├ dWP 1228(C)	Rivet	2	11	o*		
└ Rm 1.3	Rivet	3	11	o*		
NP 1213(D)	Pressure plate	1	6	o		
cWP 1214(B)	Spring	1	6	o		
NP 1215(B)	Screw	2	6	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
cWP 1217(D)	Hinge shaft	1	6	o		
cWP 1218(B)	Collar	3	6	o		
dWP 1219(B)	Sealing strip	2	6	o		
dWP 1221(B)	Back cover latch	1	9	o		
dWP 1222(B)	Cover	1	9	o		
dWP 1223(B)	Spring	1	9	o		
dWP 1224(D)	Boss	2	9	o		
dWP 1227(B)	Sealing strip	1	10	o		
dWP 1312K2	Wind lever assembly	1	1	o		
├ dWP 1312(C)	Wind lever	1	1	o*		
└ dWP 1337(D)	Hub	1	1	o*		
iWP 1313K2	Winding base plate assembly	1	4	o		
├ iWP 1313(F)	Winding base	1		x*		
├ dWP 1314(C)	Bearing	1		x*		
├ NP 1315	Bearing	1		x*		
├ dWP 1316	Bearing	1		x*		
├ iWP 1317	Bearing	1		x*		
├ iWP 1382(B)	Collar	1		x*		
└ iWP 1672	Spacer	1		x*		
iWP 1319(F)	Spring	1	4	o		
NP 1321(B)	Gear	1	4	o		
NP 1322(B)	Screw	1	4	o		
iWP 1323(C)	Ratchet pawl	1	4	o		
iWP 1325	Collar	1	4	o		
dWP 1328(C)	Nut	1	1	o		
dWP 1331(B)	Gear	1	4	o		
dWP 1332	Eccentric hub	1	4	o		
iWP 1335(B)	Shaft	1	4	o		

Parts No.	Description	Pcs.	Ref. page	of sale	parts No.	Remarks
dWP 1336K2	Wind lever shaft assembly	1	5	o		
├ dWP 1336(B)	Wind lever shaft	1		x*		
├ dWP 1991(D)	Limit plate	1	5	o*		
└ dWP 1992	Nut	1	5	o*		
iWP 1338(B)	Sleeve	1	2	o		
dWP 1339(D)	Spring	1	5	o		
iWP 1342K	Gear	1	10	o		
iWP 1346K	Film spool	1	10	o		
iWP 1347(C)	Spring, film spool	1	10	o		
iWP 1348	Bearing	1	10	o		
iWP 1351(B)	Winding gear	1	4	o		
dWP 1353K2	Winding arm assembly	1	4	o		
├ dWP 1353(E)	Winding arm	1		x*		
├ dWP 1391(D)	Pawl	1		x*		
├ dWP 1392(B)	Shaft rivet	1		x*		
├ dWP 1393(D)	Pin	1		x*		
├ dWP 1394(E)	Spring	1	4	o*		
└ dWP 1398(B)	Retaining washer	1		x*		
dWP 1354	Collar	1	4	o		
iWP 1355	Idle gear	1	4	o		
iWP 1356	Nut, film spool	1	10	o		
iWP 1359(D)	Stopper	1	4	o		
iWP 1361K2	Sprocket assembly	1	10	o		
├ iWP 1361(B)	Sprocket	1		x*		
└ dWP 1371(B)	Pin for clutch	1		x*		
iWP 1362(B)K	Sprocket gear assembly	1	4	o		
iWP 1366	Spring	1	2	o		
iWP 1376(C)	Screw	1	4	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
iWP 1381(C)	Change-over lever	1	4	o		
iWP 1383(C)	Screw	1	4	o		
iWP 1384(B)	Screw	1	2	o		
iWP 1385(C)	Spring	1	4	o		
iWP 1395K2	Sprocket shaft assembly	1	4	o		
├ iWP 1395(C)	Sprocket shaft, upper	1		x*		
└ iWP 1365	Pin	1		x*		
dWP 1396K2	Sprocket shaft assembly	1	8	o		
├ dWP 1396(C)	Sprocket shaft, lower	1		x*		
├ dWP 1373(B)	Gear	1		x*		
├ dWP 1374	Retaining ring	2		x*		
├ NP 1616(B)	Steel ball bearing	30		x*		
└ 6W 4x0.2	Washer	2		x*		
iWP 1411(D)	Safety arm	1	4	o		
iWP 1412(B)	Sleeve	1	4	o		
iWP 1414(B)	Spring	1	4	o		
dWP 1441K2	Idle gear assembly	1	8	o		
├ dWP 1441	Idle gear	1		x*		
└ dWP 1442(C)	Gear shaft	1		x*		
dWP 1443(C)	Braking disc	1	8	o		
dWP 1444(B)	Spring	1	8	o		
dWP 1448(C)	Bearing	1	8	o		
iWP 1455K2	Ratchet wheel assembly	1	8	o		
├ iWP 1455(D)	Ratchet wheel	1		x*		
└ NP 1456	Hub	1		x*		
NP 1457	Screw	1	8	o		
iWP 1458(B)	Leaf spring	1	8	o		
cWP 1459	Pawl	1	8	o		

Parts No.	Description	Pcs.	Ref. page	of sale parts No.	Remarks
NP 1462(B)	Hub	1	8	o	
NP 1463(D)	Screw	1	8	o	
dWP 1465(D)	Spring	1	8	o	
NP 1468(B)	Pin	1	8	o	
dWP 1471(C)	Gear	1	8	o	
NP 1472	Screw	1	8	o	
cWP 1473(C)	Screw	1	8	o	
cWP 1475(B)	Lever	1	8	o	
NP 1476(D)	Hub	1	8	o	
NP 1477(B)	Spring	1	8	o	
dWP 1478(B)	Screw	1	8	o	
dWP 1481(B)	Linking disc	1	8	o	
dWP 1483(C)	Retaining ring	1	8	o	
iWP 1513(C)	Screw	1	4	o	
iWP 1514(C)	Bracket	1	10	o	
iWP 1515K2	Exposure counter assembly	1	2	o	
├ iWP 1511(B)	Counter dial	1		x*	
├ iWP 1513(C)	Screw	1	2	o*	
├ iWP 1515(B)	Ratchet wheel	1		x*	
└ iWP 1516(B)	Spring	1		x*	
iWP 1519(C)	Counter indicator	1	2	o	
dWP 1521(B)	Feeding ratchet	1	4	o	
dWP 1522(B)	Pawl	1	4	o	
cWP 1523(B)	Spring	1	2	o	
iWP 1524	Stopper screw	1	4	o	
dWP 1525(B)	Spring	1	4	o	
dWP 1527(C)	Returning lever	1	4	o	

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
dWP 1528(C)	Spring	1	4	o		
dWP 1529(C)	Screw for 1527	1	4	o		
iWP 1531(B)	Base plate for counter	1	4	o		
dWP 1532(B)	Post screw	1	4	o		
dWP 1534	Anchor screw	1	4	o		
dWP 1536	Dust-proof washer	1	1	o		
iWP 1612K	Rear curtain lever	1	9	o		
dWP 1614(D)	Coupler	1	9	o		
NP 1615(B)	Screw	1	9	o		
NP 1616	Steel ball	17	9	o		
dWP 1624K2	Curtain drum assembly	1	8	o		
├ cWP 1624(C)K	Rear curtain drum	1		x*		
├ dWP 1449	Stopper	1		x*		
├ cWP 1621(B)	Shaft	1		x*		
├ NP 1622	Upper pulley	1		x*		
├ NP 1626(B)	Lower pulley	1		x*		
├ dWP 1627(B)	Gear	1		x*		
├ NP 1628(B)	Pin	2		x*		
├ NP 1629(C)	Washer	2		x*		
└ dWP 1634	Bearing	2		x*		
NP 1629(C)	Washer	1to 3	8	o	TL 1631	
dWP 1635(C)K	Curtain spring shaft	1	8	o		
NP 1637(B)	Bearing	1	8	o		
NP 1638(B)	Front curtain drum	1	8	o		
NP 1639(B)	Bearing	1	8	o		
dWP 1643(C)K	Curtain spring shaft	1	8	o		
NP 1645(B)	Upper pulley	1	8	o		
NP 1646(C)	Lower pulley	1	8	o		
NP 1647	Bearing	1	8	o		

Parts No.	Description	Pcs.	Ref. page	of sale parts No.	Remarks
NP 1648(C)	Rear curtain drum	1	8	o	
NP 1649K2	Rear curtain gear assembly	1	8	o	
├ NP 1649	Bearing	1		x*	
└ NP 1651(B)	Gear	1		x*	
NP 1655(C)K	Front curtain assembly	1	8	o	
NP 1656(C)K	Rear curtain assembly	1	8	o	
NP 1661	Spring adjusting gear	2	8	o	
dWP 1663	Pawl	1	8	o	
iWP 1671K2	Mirror charging lever assembly	1	4	o	
├ iWP 1671(C)	Lever	1		x*	
└ iWP 1675	Shaft	1		x*	
iWP 1673(C)	Cam, mirror charging	1	4	o	
iWP 1676(B)	Collar	1	4	o	
iWP 1677	Screw	1	4	o	
iWP 1678(C)	Spring	1	4	o	
iWP 1711K2	Release lever assembly	1	4	o	
├ iWP 1711	Release lever	1		x*	
├ dWP 1712(F)	Shaft	1		x*	
├ NP 1713(B)	Rivet	1		x*	
├ NP 1714(D)	Rivet	1		x*	
├ NP 1715(B)	Washer	1		x*	
└ NP 1716(B)	Arm	1		x*	
NP 1717	Spring	1	6	o	
cWP 1718(C)	Collar	1	4	o	
NP 1719(D)	Stopper	1	4	o	
NP 1722(D)	Screw	1	6	o	
dWP 1723(C)	Limit washer	1	2	o	

Parts No.	Description	Pcs.	Ref. page	Item of sale	Common parts No.	Remarks
iWP 1724K2	Front curtain cam assembly	1	6	o		
├ iWP 1724	Cam	1		x*		
└ NP 1721(C)	Hub	1		x*		
iWP 1725K2	Shutter speed cam assembly	1	2	o		
├ iWP 1725	Cam	1		x*		
├ dWP 1728	Shaft	1		x*		
└ cWP 1779	Rivet	1		x*		
dWP 1726(B)	High speed cam	1	2	o		
dWP 1727(C)	Change-over cam	1	2	o		
NP 1729	Screw	1	2	o		
NP 1732(B)	Washer	1	2	o		
iWP 1733K2	Base plate assembly	1	2	o		
├ iWP 1733(D)	Base plate	1		x*		
├ NP 1734(B)	Bearing	1		x*		
├ NP 1735(B)	Anchor	1		x*		
└ cWP 1779	Rivet	2		x*		
iWP 1737K2	Click plate assembly	1	2	o		
├ iWP 1737	Click plate	1		x*		
└ NP 1739(B)	Pin	1		x*		
iWP 1738	Screw	1	2	o		
NP 1741(F)	Post screw	1	6	o		
NP 1742(B)	Eccentric collar	1	2	o		
dWP 1743	Post screw	1	4	o		
iWP 1744(B)	Post screw	1	4	o		
NP 1745K2	Lever assembly	1	2	o		
├ NP 1745(E)	Lever	1		x*		
├ NP 1746(C)	Rivet	1		x*		
└ NP 1747(C)	Eccentric rivet	1		x*		

Parts No.	Description	Pcs.	Ref. page	of parts sale No.	Remarks
NP 1748(G)	Spring	1	2	o	
NP 1749	Screw	1	2	o	
NP 1752(B)	Washer	1	2	o	
iWP 1753K2	Slow speed arm assembly	1	2	o	
├ iWP 1753(B)	Slow speed arm	1		x*	
├ iWP 1754(B)	Rivet	1		x*	
├ iWP 1756(B)	Arm	1		x*	
├ iWP 1757(B)	Rivet	1		x*	
├ iWP 1764(D)	Leaf spring	1		x*	
└ Rm 1.3	Rivet	1		x*	
iWP 1755(D)	Spacer	1	2	o	
iWP 1758(C)	Spring	1	2	o	
iWP 1759(D)	Screw	1	2	o	
iWP 1762(B)K	Transmission lever assembly	1	7	o	
dWP 1765	Adjusting screw	1	8	o	
iWP 1766(C)	Spring	1	6	o	
NP 1767K2	Release lever assembly	1	6	o	
├ NP 1767(D)	Lever	1		x*	
└ NP 1771(C)	Hub	1		x*	
NP 1768(E)K	Shaft	1	7	o	
iWP 1772(B)	Screw	1	6	o	
TL 1775K2	Film speed dial assembly	1	1	o	
├ TL 1775	Dial plate	1		x*	
└ dWP 1799	Pin	1		x*	

Parts No.	Description	Pcs.	Ref. page	of sale	parts No.	Remarks
TL 1776K2	Shutter speed ring assembly	1	1	o		
├TL 1776(B)	Speed ring	1		x*		
├ cWP 1774(D)	Pin	1		x*		
├ dWP 1783(C)	ASA hub	1		x*		
├ cWP 1784(C)	Pin	1		x*		
├ dWP 1787(B)	Disc spring	1		x*		
└ dWP 1788(B)	Flange disc	1		x*		
TL 1777(B)	Shutter dial plate	1	1	o		
cWP 1778(B)	Screw	1	1	o		
dWP 1781K2	Pulley assembly	1	2	o		
├ dWP 1781(C)	Pulley	1		x*		
└ dWP 1782(B)	Linking rod	1		x*		
dWP 1789(B)	Chainlet	1	3	o		
TL 1811K2	Top cover assembly	1	1	o		
├ TL 1811(B)	Top cover	1		x*		
├ dWP 1517(D)	Window cover	1	1	o*		
├ dWP 1812	Cushion	1	1	o*		
├ dWP 1852(C)	Trimming plate	1		x*		
└ dWP 1911	Guide	1		x*		
iWP 1813K2	Eyepiece window assembly	1	3	o		
├ iWP 1813(C)	Window	1	3	o*		
└ TL 1825	Vinyl line	2	3	o*		
iWP 1815(D)	Screw	3	3	o		
NP 1816(C)	Eyepiece	1	3	o		
iWP 1817(B)	Fixture, top cover	1	2	o		
iWP 1818	Spacer	2	2	o		
dWP 1819	Screw	2	1	o		
dWP 1819	Screw for 1851	2	1	o		TL 1853

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
dWP 1821K2	Bottom cover assembly	1	1	o		
├ dWP 1821(J)	Bottom cover	1		x*		
├ dWP 1837	Flange disc	1		x*		
├ dWP 2936(B)	Insulate washer	1	1	o*		
└ dWP 2937(C)	Chamber ring	1		x*		
iWP 1823	Screw for 1811K2	1	1	o		
TL 1824	Light baffle paper	2	3	o		
cWP 1833(B)	Screw for 1821K2	2	1	o		
cWP 1833(B)	Screw for 1817	2	2	o	TL 1822	
dWP 1835	Rewind button	1	1	o		
TL 1851(B)	Front cover	1	1	o		
TL 1854	Indication plate	1	3	o		
dWP 1855	Light baffle paper	1	6	o		
TL 1856	Switch cover	1	3	o		
TL 1857(B)	Sponge	1	6	o		
iWP 1915K2	Shutter button assembly	1	1	o		
├ dWP 1912	Button	1		x*		
└ iWP 1915	Plate	1		x*		
NP 1913(C)	Shutter release rod	1	2	o		
TL 1914	Chain ring	2	3	o		
dWP 1931(E)	Angle plate	1	7	o		
dWP 1942(D)	Button	1	1	o		
dWP 1943K2	Lever assembly	1	5	o		
├ dWP 1943(D)	Lever	1		x*		
└ dWP 1941(D)	Shaft	1		x*		
dWP 1945(C)	Spring	1	5	o		
dWP 1946(B)	Stopper	1	5	o		
dWP 1947(C)	Spring	1	5	o		
dWP 1948(B)	Anchor	1	5	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
dWP 1949	Disc	1	1	o		
dWP 1951(D)K	Switch lever	1	5	o		
dWP 1952	Supporter	1	5	o		
dWP 1953	Supporter	1	5	o		
dWP 1954(B)	Screw	1	5	o		
dWP 1955	Screw	1	5	o		
dWP 1961(B)	Lever	1	8	o		
dWP 1962(B)	Hub	1	8	o		
dWP 1963(C)	Screw	1	8	o		
dWP 1971K2	Diaphragm lever assembly	1	7	o		
├ dWP 1971(B)	Lever	1		x*		
└ dWP 1974	Pin	1		x*		
dWP 1972(C)	Collar	1	7	o		
dWP 1973(B)	Collar	1	7	o		
dWP 1975(B)	Screw	1	7	o		
dWP 1976(B)	Screw	1	7	o		
TL 2100	Mirror housing assembly	1	6	o		
TL 2111	Mirror housing	1	12	x*		
dWP 2112(B)	Penta prism	1	2	o		
NP 2113(F)	Penta prism frame	1	2	o		
dWP 2114(D)	Retaining spring	1	2	o		
TL 2115(F)K	Condenser lens assembly	1	6	o		
dWP 2117(E)	Condenser frame	1	6	o		
dWP 2118(D)	Spring	1	6	o		
NP 2119	Screw	4	6	o		
TL 2121K(B)	Mirror plate assembly	1	12	o		
TL 2123(B)	Shaft	1	12	o		
TL 2124(C)	Retaining spring	1	6	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
TL 2125(B)	Light baffle	1	1	o		
dWP 2126(B)	View-finder frame	1	2	o		
TL 2127(C)	Sealing sponge	1	12	o		
TL 2128(C)	Spring	1	12	o		
dWP 2129(B)	Sponge	2	2	o		
TL 2131	Mirror shaft	1	12	o		
TL 2133(D)	Mirror	1	6	o		
iWP 2134	Disc	1	12	o		
dWP 2135	Penta prism cover	1	2	o		
TL 2137(B)	Plate	1	12	o		
TL 2142(C)	Spring	1	12	o		
cWP 2142(B)	Spring	1	12	o	TL 2179	
dWP 2143	Rod	2	6	o		
TL 2144K2	Flip-up lever assembly	1	12	o		
├ TL 2136(E)	Lever	1		x*		
├ TL 2141(C)	Lever	1		x*		
├ TL 2144	Collar	1		x*		
├ TL 2183(B)	Lever	1		x*		
│ └ TL 2332	Rivet	1		x*		
├ 5W 3x0.2	Washer	1		x*		
└ 5W 3x0.3	Washer	1		x*		
TL 2145	Screw	1	12	o		
TL 2146(B)	Spring	1	12	o		
TL 2147(B)	Anchor	1	12	o		
TL 2148	Nut	1	12	o		
TL 2149(C)	Pawl	1	12	o		
TL 2151K2	Mirror lever assembly	1	12	o		
├ TL 2151(D)	Mirror lever	1		x*		
└ TL 2152(B)	Rivet	1		x*		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
TL 2153	Collar for 2151K2	1	12	o		
TL 2153	Collar for 2177	1	12	o	TL 2175	
TL 2155(B)	Screw	1	12	o		
TL 2161(D)	Release lever	1	12	o		
TL 2162(B)	Hub	1	12	o		
TL 2163(C)	Spring	1	12	o		
TL 2164(B)	Screw	1	12	o		
TL 2171(D)	Shutter release lever	1	12	o		
TL 2173(C)	Screw	1	12	o		
NP 2173(B)	Screw for 1443	1	8	o	TL 1484	
TL 2174(B)	Linking lever	1	12	o		
TL 2176(C)	Screw	1	12	o		
TL 2177(C)	Diaphragm release lever	1	12	o		
TL 2178(E)	Spring	1	12	o		
cWP 2186(B)	Screw	1	12	o		
iWP 2191	Cushion, mirror holder	1	12	o		
cWP 2192(B)	Screw	1	12	o		
TL 2193	Screw	1	6	o		
dWP 2194K2	Link plate assembly	1	6	o		
├ dWP 2194(H)	Plate	1		x*		
└ dWP 2195(C)	Rivet	1		x*		
dWP 2197K2	Reflection absorber	1	6	o		
├ dWP 2197	Absorber	1		x*		
└ dWP 2337(C)	Plate	1		x*		
dWP 2198(C)	Shaft	1	6	o		
NP 2199	Screw	2	6	o		
dWP 2211	Bush	1	10	o		
dWP 2212(B)	Rewind shaft	1	10	o		
dWP 2213(B)	Spring	1	10	o		
cWP 2214(B)	Dustproof washer	1	1	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
TL 2215(D)	Black paper	1	12	o		
TL 2216(C)	Black paper	1	6	o		
cWP 2221(B)	Rewind knob	1	1	o		
dWP 2222K	Rewind lever assembly	1	1	o		
dWP 2224(C)	Crank head	1	1	o		
dWP 2225	Screw	1	1	o		
dWP 2226	Spring	1	1	o		
dWP 2227	Screw	2	1	o		
dWP 2228	Shaft	1	1	o		
dWP 2311K2	Lens mount assembly	1	1	o		
├ dWP 2311(B)	Lens mount	1		x*		
├ dWP 2338(D)	Screw	1	1	o*		
└ dWP 2342	Cushion	1	1	o*		
dWP 2312(B)	Washer	1 to 2	1	o		
cWP 2313(B)	Screw	4	1	o		
cWP 2315	Washer t=0.03 t=0.05	2	1	o		
TL 2331K2	Aperture coupling lever assembly	1	12	o		
├ TL 2172(E)	Assist lever	1		x*		
├ TL 2331(D)	Lever	1		x*		
└ TL 2333	Collar	1		x*		
TL 2334(C)	Screw	1	12	o		
TL 2335(C)	Spring	1	12	o		
dWP 2336(D)	Spring	1	6	o		
dWP 2339	Light shield strip	1	12	o		
iWP 2411K	Synchro contact assembly	1	8	o		
dWP 2415(B)	Screw	2	8	o		
NP 2421	Insulating tube	1	8	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
dWP 2423K	Terminal	2	9	•		
cWP 2428A	Lead (FP)	1	9	o		
cWP 2428B	Lead (X)	1	9	o		
dWP 2429(C)	Terminal plate	1	9	o		
dWP 2500	Governor	1	8	o		
NP 2521	Screw	1	5	o	TL 1958	
dWP 2600	Self-timer	1	2	o		
dWP 2611	Self-timer lever	1	1	o		
dWP 2612	Pin face screw	1	1	o		
dWP 2613(B)	Screw	3	2	o		
dWP 2711(C)	Leatherette	1	2	o		
dWP 2712(B)	Leatherette	1	2	o		
dWP 2713 (D)	Leatherette	1	6	o		
dWP 2714 (B)	Leatherette	1	9	o		
NP 2715	Light shield	1	6	•		
NP 2716(B)	Sealing strip	2	10	o		
NP 2719B	Light shield	2	12	o		
dWP 2721(B)	Light shield	1	12	o		
dWP 2912	Screw	1	6	o		
cWP 2923(C)	Pulley	2	6	•		
dWP 2926K2	Pulley assembly	1	6	o		
├ dWP 2926(C)	Bracket	1		x*		
├ cWP 2923(C)	Pulley	2		x*		
└ cWP 2927(C)	Shaft	2		x*		
TL 2928K2	Pulley assembly	1	3	o		
├ cWP 2923(C)	Pulley	1		x*		
├ cWP 2927(C)	Shaft	1		x*		
└ TL 2928	Bracket	1		x*		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
dWP 2933K2	Chamber cover assembly	1	1	o		
├ dWP 2911	Spring	1	1	o*		
├ dWP-P2933	Chamber	1	1	o*		
└ dWP 1125(B)	Rubber disc	1	1	o*		
dWP 2934(B)	Silver battery	1	1	x		
TL 2941	Exposure meter unit (Galvanometer, CdS cells, Registor and switch)	1	3,6&9	o		
TL 2942	Switch head	1	3	o		
TL 2943(B)	Spring	1	3	o		
TL 2944	Post screw	1	3	o		
TL 2945(C)	Screw	1	4	o		
dWP 2946(C)	Anchor screw	1	3	o		
TL 2947	Guide screw	1	3	o		
TL 2949K2	Indication assembly	1	6	o		
├ TL 2949(E)	Indication bar	1	6	o*		
└ TL 2964	Indication	1	6	o*		
TL 2951(C)	Meter base plate	1	3	o		
dWP 2952(B)	Screw	2	3	o		
TL 2953(B)	Screw	2	9	o		
dWP 2955	Screw	1	3	o		
TL 2956(B)	Chainlet	1	3	o		
TL 2957(C)	Spring	1	6	o		
TL 2958	Sponge disc	1	9	o		
TL 2961(D)	Lever	1	4	o		
TL 2962	Hub	1	4	o		
TL 2963(D)	Spring	1	4	o		
TL 2965(B)	Anchor	1	12	o		
dWP 2971	Insulator	2	6	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
dWP 2972	Insulator holder	1	12	o		
dWP 2973(B)	Screw	1	12	o		
cFC 4629(B)	Collar	2	1	o	TL 1838	

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
As 1.4x1.4B	Set screw for 1332	1	4	o		
As 1.7x1.4B	Set screw for 1673	2	4	o		
As 2x2B	Set screw for 1328	1	1	o		
2.5Bs1.7x2 BNi	Screw for 2113	2	2	o		
2.5Bs1.7x3	Screw for resistor base	2	3	o		
3Bs1.7x1.4	Screw for 1737K2	1	2	o		
3Bs1.7x2	Screw for 1458	1	8	o		
3Bs1.7x2	Screw for 1663	2	8	o		
3Bs1.7x2.5 BNi	Screw for 2211	2	10	o		
3Bs1.7x3	Screw for 2500	2	8	o		
3Bs1.7x3	Screw for 2951	1	3	o		
3Bs1.7x3.5	Screw for 1519	1	2	o		
3B1.7x4 H9	Screw for 1114K2	3	7	o		
3B1.7x5 H9 Cr	Screw for 1913	1	2	o		
3.5Bs2x4	Screw for 1113	2	6	o		
3.5Bs2x4	Screw for 1115	2	6	o		
4B1.7x2.5 H9	Screw for 1717	1	6	o		
4C1.7x2.5 H7	Screw for 1719	1	4	o		
2.5Ds1.4x3.5	Screw for 1222	2	9	o		
2.8D1.7x2.5 H6,5	Screw for 1448	3	8	o		
3Ds1.7x2.5 Cr	Screw for 1821K2	2	1	o		
3Ds1.7x3.5	Screw for 1313K2	1	4	o		
3Ds1.7x3.5	Screw for 1531	1	4	o		
PB1.7x2.2	Screw for 2928K2	1	3	o		
PB1.7x2.2	Screw for 2193	1	6	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
4W2x0.2	Washer for 2972	1	12	o		
4W2x0.5	Washer for 1941	1	5	o		
4W2x0.5	Washer for 2923	1	6	o		
4W2.5x0.05	Washer for 2961	1	4	o		
6W3x0.1	Washer for 1362K	1	4	o		
6W3x0.2	Washer for 1362K	1	4	o		
6W4x0.2	Washer for 1336K2	1	2	o		
6W4x0.2	Washer for 1336K2	1	10	o		
6W4x0.2	Washer for 1351	1	4	o		
8W4x0.1	Washer for 1336K2	1	5	o		
8W4x0.2	Washer for 1336K2	2	5	o		
8W6x0.1	Washer for 1346K	3	10	o		
E-13	Retaining ring for 1676	1	4	o		
E-13	Retaining ring for 1768K	1	6	o		
E-13	Retaining ring for 1768K	1	7	o		
E-32	Retaining ring for 1336K2	1	4	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
TL 2111	Mirror housing	1	12	x*		
TL 2121K(B)	Mirror plate assembly	1	12	o		
TL 2123(B)	Shaft	1	12	o		
TL 2127(C)	Sealing sponge	1	12	o		
TL 2128(C)	Spring	1	12	o		
TL 2131	Mirror shaft	1	12	o		
iWP 2134	Disc	1	12	o		
TL 2137(B)	Plate	1	12	o		
TL 2142(C)	Spring	1	12	o		
TL 2144K2	Flip-up lever assembly	1	12	o		
├ TL 2136(E)	Lever	1		x*		
├ TL 2141(C)	Lever	1		x*		
├ TL 2144	Collar	1		x*		
├ TL 2183(B)	Lever	1		x*		
│ └ TL 2332	Rivet	1		x*		
├ 5W3x0.2	Washer	1		x*		
└ 5W3x0.3	Washer	1		x*		
TL 2145	Screw	1	12	o		
TL 2146(B)	Spring	1	12	o		
TL 2147	Anchor	1	12	o		
TL 2148	Nut	1	12	o		
TL 2149	Pawl	1	12	o		
TL 2151K2	Mirror lever assembly	1	12	o		
├ TL 2151(D)	Mirror lever	1		x*		
└ TL 2152(B)	Rivet	1		x*		
TL 2153	Collar for 2151K2	1	12	o		
TL 2155(B)	Screw	1	12	o		
TL 2161(D)	Release lever	1	12	o		

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
TL 2162(B)	Hub	1	12	o		
TL 2163(C)	Spring	1	12	o		
TL 2164(B)	Screw	1	12	o		
TL 2171(D)	Shutter release lever	1	12	o		
TL 2173(C)	Screw	1	12	o		
TL 2174(B)	Linking lever	1	12	o		
TL 2153	Collar for 2177	1	12	o	TL 2175	
TL 2176(C)	Screw	1	12	o		
TL 2177(C)	Diaphragm release lever	1	12	o		
TL 2178(E)	Spring	1	12	o		
cWP 2142(B)	Spring	1	12	o	TL 2179	
cWP 2186(B)	Screw	1	12	o		
iWP 2191	Cushion, mirror holder	1	12	o		
cWP 2192(B)	Screw	1	12	o		
TL 2215(D)	Black paper	1	12	o		
TL 2331K2	Aperture coupling lever assembly	1	12	o		
├ TL 2172(E)	Assist lever	1		x*		
├ TL 2331(D)	Lever	1		x*		
└ TL 2333	Collar	1		x*		
TL 2334(C)	Screw	1	12	o		
TL 2335(C)	Spring	1	12	o		
dWP 2339	Light shield strip	1	12	o		
NP 2719B	Light shield	2	12	o		
dWP 2721(B)	Light shield	1	12	o		
TL 2965(B)	Anchor	1	12	o		
dWP 2972	Insulator holder	1	12	o		
dWP 2973(B)	Screw	1	12	o		
4W2xO.2	Washer for 2972	1	12	o		

(Without Built in Self-timer)

Parts No.	Description	Pcs.	Ref. page	Term of sale	Common parts No.	Remarks
iWP 1733hK2	Base plate assembly	1	13	o		
├ iWP 1733h(D)	Plate	1		x*		
├ NP 1734(B)	Bearing	1		x*		
├ NP 1735(B)	Anchor	1		x*		
└ cWP 1779	Rivet	2		x*		
TL 1777h(B)	Shutter dial plate	1	13	o		
TL 1811hK2	Top cover assembly	1	1& 13	o		
├ TL 1811h(B)	Top cover	1		x*		
├ dWP 1517(D)	Window cover	1	1	o*		
├ dWP 1812	Cushion	1	1	o*		
├ dWP 1852(C)	Plate	1		x*		
└ dWP 1911	Guide	1		x*		
hWP 2621	Cover plate	1	13	o		
hWP 2712	Leatherette	1	13	o		

SERVICE MANUAL

REPAIR MANUAL

for

mamiya/sekor 1000DTL and 500DTL

MAMIYA CAMERA CO., LTD.
TOKYO JAPAN

CONTENTS

I. Disassembling and reassembling the top cover, bottom cover, front cover, and lens mount

II. Winding, rewinding and film feeding mechanisms

III. Inspecting and adjusting shutter speed

IV. Disassembling and reassembling the exposure meter

V. Focus and light path

VI. Mirror housing assembly

VII. Repair procedures

I. Disassembling and reassembling the top cover, bottom cover, front cover, and lens mount

1. Disassembling method of parts for TL1811K2 (top cover assembly)

(1) Disassembling dWP1312K2 (wind lever assembly)

Remove dWP1328 (nut) by turning it clockwise with the spanner for wind lever nut. When the nut is too tight to remove, remove dWP1949 (disk). Then, after inserting a driver through dWP1942 (button) hole to loosen As2x2 (screw), the above-mentioned dWP1328 (nut) can be removed easily by turning it.

(2) Disassembling TL1776K2 (shutter speed ring assembly)

Set the shutter speed at 1/4 second. Next, set TL1775K2 (film speed dial assembly) on ASA80. In doing so, the head of cWP1778 (screw) coincides with the position of the side hole on the speed ring; insert a driver through this hole to loosen cWP1778 (screw), then pull TL1776K2 (speed ring) out and upward.

(3) Disassembling cWP2221 (rewind knob)

Open the back cover, insert tweezers into the fork portion of dWP2212 (rewind shaft),

and turn the knob counterclockwise; then remove cWP2221 (knob) from the shaft.

(4) Disassembling TL1811K2 (top cover)

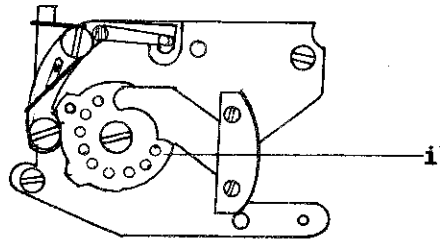
By removing two dWP1819 (screws) located on both sides of the top cover and one iWP1823 (screw), the top cover assembly can be detached.

Precautions on reassembling the top cover assembly

(1) Reassembling should be performed in procedures reverse to assembling; however, pay special attention to the following points.

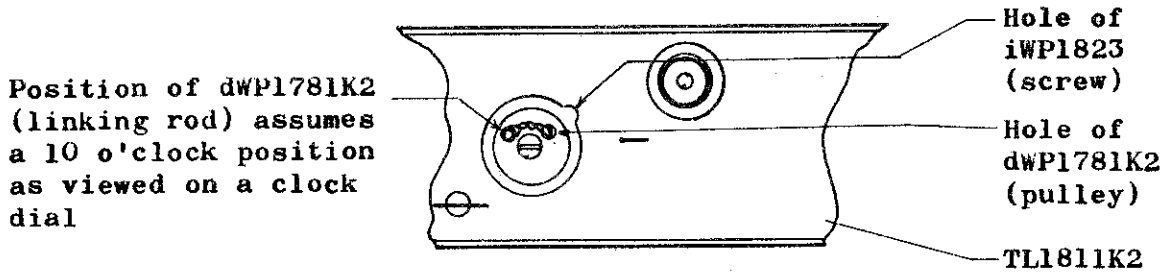
When reassembling the top cover assembly, ensure that dWP1789 (chainlet) which is wound on the galvanometer barrel is not piled up due to a slack condition. Further, be careful not to catch cords which are wired to the chainlet and the resistor base between the top cover and camera body.

(2) To install the shutter speed ring assembly, set the film speed dial of TL1776 (shutter speed ring) to ASA80; next, set iWP1725K2 (shutter speed cam assembly) at 1/4 second.



Position of 1/4 cam

(3) Turn dWP1781K2 (pulley assembly) 1 2/3 revolution counter-clockwise from the position where the chainlet was not wound, and by maintaining the pulley at that position, insert it into the pulley shaft after setting figure 4 of the shutter speed ring to the top cover index line, ensuring that the linking rod on dWP1781K2 (pulley assembly) and the shutter speed ring assembly are connected correctly. Further, at the position where the pulley assembly was rotated 1 2/3 revolution, the pulley hole located on the top cover coincides with the hole of iWP1823 (screw) as shown in the diagram. Furthermore, the linking rod position of the pulley assumes a 10 o'clock position as viewed on a clock dial.


Position of dWP1781K2 (linking rod) assumes a 10 o'clock position as viewed on a clock dial
Hole of iWP1823 (screw)
Hole of dWP1781K2 (pulley)
TL1811K2

(4) Insert the wind lever assembly into the shaft, tighten the As2x2 (setscrews) sufficiently after securely screwing in dWP1328 (nut), then tighten the nut. Secure the disk and the button with Pliobond bonding agent.

(5) Reassemble the rewind lever assembly.

2. Disassembling and reassembling the bottom cover assembly

(1) Remove two cWP1833 (screws) and two 3Ds1.7x2.5Cr (screws) securing the dWP1821K2 (bottom cover assembly); then remove dWP1835 (rewind button) by turning it clockwise with the UPFT repair tool, finally detaching dWP1821K2 (button cover assembly).

(2) When reassembling the bottom cover assembly, previously loosen two dWP1819 (screws); then install the bottom cover assembly and tighten it with each screw. Install dWP1835 (rewind button) by turning it counterclockwise; then tighten dWP1819 (screw) while pressing the lower side of the front cover to the body.

3. Disassembling and reassembling the front cover

(1) To remove TL1851 (front cover), at first, remove the top cover assembly; next, remove the front cover after loosening two dWP1819 (screws).

(2) When installing the front cover, insert it so that the right side (dented) portion of the front cover enters the groove of TL1854 (indication plate) and partially tighten dWP1819 (screws); then fully tighten the screws while pressing the lower side of the front cover to the body side after installing the top cover assembly.

When installing the front cover, pay attention that the lens mount assembly is never scratched by the front cover.

4. Removing the lens mount assembly, reassembly, and adjustment

(1) Measuring instruments and tools to be used

Dial gauge comparator, M-dWP1 standard block gauge, standard round type block gauge, and measuring stand.

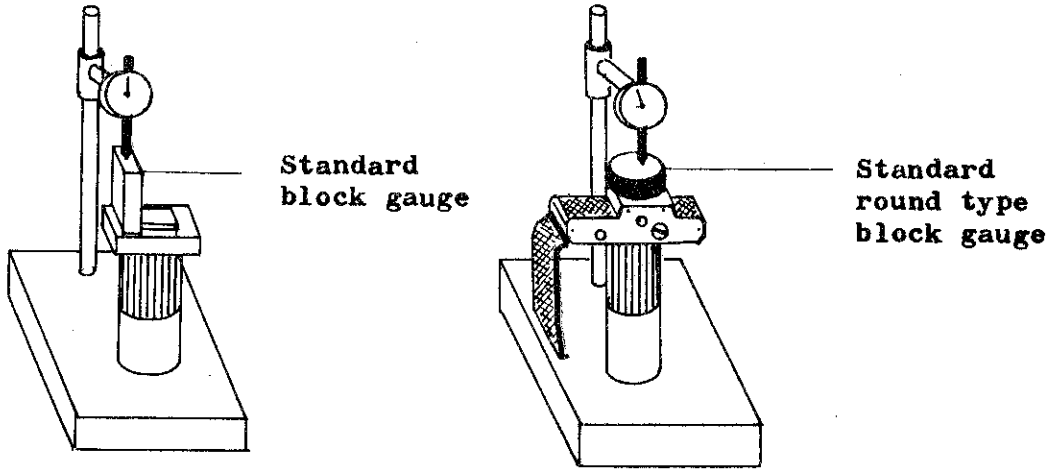
(2) Remove the top cover and front cover.

(3) By removing four cWP2313 (screws), the dWP2311K2 (lens mount assembly), dWP2312 (washer), and cWP2315 (washer) will come off.

(4) When reassembling, previously turn the cut portion of dWP2312 (washer) to the bottom cover assembly and set the hole position. Next, secure the lens mount assembly hole position by turning dWP2311K2 cushion in the direction of the bottom cover, tightening it with four cWP2313 (screws).

(5) As an adjusting method, perform the relative measurement of dimensions from the camera lens securing surface to the inside film guide rail surface by using the standard block gauge, standard round type block gauge, and dial gauge. In this case, measurement must be performed by placing the

standard block gauge in front of the lens mount assembly. Insert cWP2315 (washer) under the lens mount assembly and adjust the relative measurement value against the standard block gauge by increasing or decreasing the width of the inserted washer.



II. Winding, rewinding and film feeding mechanisms

(Refer to Exploded Views, on pp.

1. Remove the top cover and bottom cover.
2. To remove dWP1336K2 (wind lever shaft assembly)
   (1) At first, open the back cover and remove the spring from iWP1514 (bracket); then pull out iWP1515K2 (exposure counter assembly) and iWP1338 (sleeve) from the shaft.

(2) Loosen As1.4x1.4 (setscrew) of dWP1332 (eccentric hub); then remove dWP1521 (feeding ratchet) and dWP1522 (pawl).

(3) Remove iWP1519 (counter indicator), dWP1534 (anchor screw), and 3Ds1.7x3.5 (screw); then detach iWP1531 (base plate for counter).

(4) Pull out the washer from the shaft together with dWP1353K2 (winding arm assembly) and iWP1351 (winding gear); then remove the washer and E-32 (retaining ring). Next, turn the camera body upside down and detach dWP1945 (spring) and dWP1947 (spring).

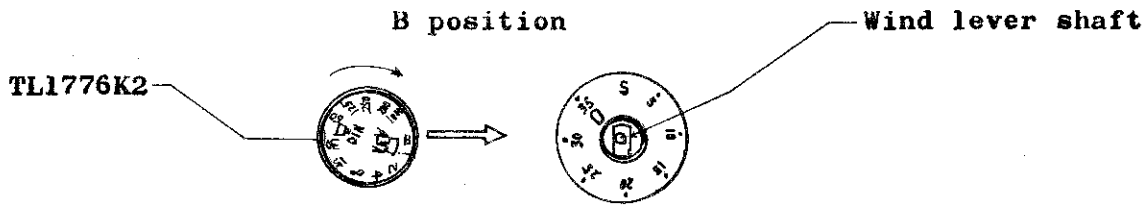
(5) Next, by detaching dWP1339 (spring) from dWP1951K (switch lever), dWP1336K2 (wind lever shaft) can be pulled out together with dWP1943K2 (lever assembly).

3. Disassembling the base plate assembly

(1) Correctly scribe the position of countersink of NP1742 (eccentric collar) on NP1745K2 (lever assembly), and pull out dWP1781K2 (pulley assembly) from the shaft; then remove NP1748 (spring) from iWP1711K2 (release lever assembly).

(2) Determine the B position of iWP1725K2 (shutter speed cam assembly) and shutter speed ring. At first, insert TL1776K2 (shutter speed ring) into iWP1725K2 (shutter speed cam assembly) and turn it clockwise

until it comes to a complete stop. Stopped position is the B position. Pull out the ring from the shaft and turn the B position of the ring in the direction of wind lever shaft and insert it. With this operation, B position of the cam and the ring is determined. When the ring comes off, determine the B position through the above-mentioned procedures, then check each shutter speed.



(3) Set the shutter speed to B and remove two cWP1833 (screws); then remove iWP1817 (fixture top cover), iWP1818 (spacer), and iWP1366 (spring).

(4) Remove NP1749 (screw); then pull out NP1742 (eccentric collar) and NP1745K2 (lever assembly) to the side, and remove iWP1733K2 (base plate assembly) by raising it.

4. Disassembling iWP1671K2 (mirror charging lever)

(Refer to Exploded Views on pp.

(1) Remove NP1913 (shutter release rod).

(2) Remove iWP1385 (spring), iWP1383 (screw), and iWP1381 (change-over lever) in turn.

(3) Detach iWP1766 (spring) from iWP1678 (spring). Next, pull out iWP1412 (sleeve) and remove iWP1411 (safety arm). iWP1414 (spring), and iWP1744 (post screw).

(4) Remove NP1722 (screw) and detach iWP1724K2 (front curtain cam assembly); then remove iWP1677 (screw), iWP1678 (spring), and iWP1671K2 (mirror charging lever assembly).

(5) Remove iWP1376 (screw) and take off the cam after loosening two Asl.7xl.4 (screws) of iWP1673 (cam mirror charging).

(6) By removing dWP1743 (post screw), dWP1532 (post screw), dWP1525 (spring), dWP1529 (screw) and 3Dsl.7x3.5 (screw), iWP1313K2 (winding base plate assembly) can be removed.

(7) iWP1362K (sprocket gear assembly) and iWP1395K2 (sprocket shaft assembly) can be pulled out.

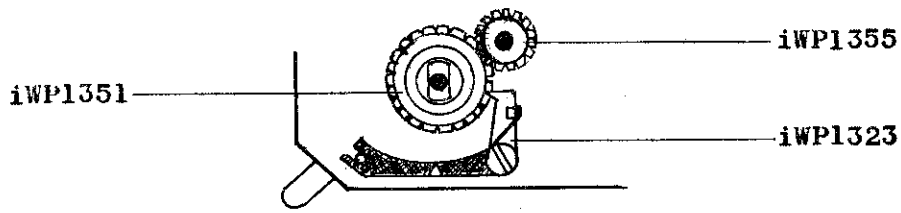
5. Reassembling and adjustment (Refer to Exploded Views on pp.

(1) Apply EP grease to the sliding portion of iWP1395K2 (sprocket shaft assembly), then insert it in iWP1362K (sprocket gear assembly); insert 6W3xO.2 (washer) in the upper shaft, then insert it in the hole of the sprocket. Next, install iWP1313K2 winding base

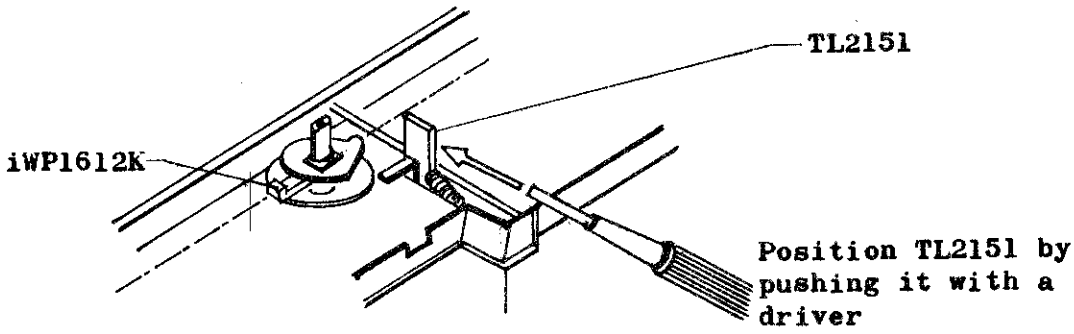
plate assembly) with 3Dsl.7x3.5 (screw) and dWP1532 (post screw). Then, insert 8W4x0.1 (washer) both in dWP1336K2 (wind lever shaft assembly) and in the hole of iWP1346K (film spool), securing the shaft extruded upward with E-32 (retaining ring). This time, the shaft allowance to the axial direction should be within 0.05 - 0.2mm. When backlash is excessive, change the previously used 8W4x0.1 (washer) on the wind lever shaft to 8W4x0.2 (washer) to adjust backlash.

After finishing the above adjustment, install dWP1527 (returning lever) with dWP1529 (screw); then secure the base plate with dWP1743 (post screw).

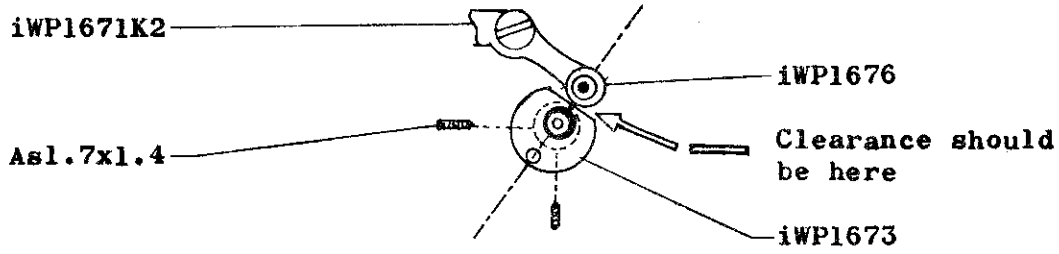
(2) Next, fit 6W4x0.2 (washer) to the wind lever shaft; then insert iWP1351 (winding gear), dWP1354 (collar), and dWP1353K2 (winding arm assembly) in order. This time, refer to the following diagram for relative positions of the winding gear, iWP1323 (ratchet pawl), and iWP1355 (shaft).



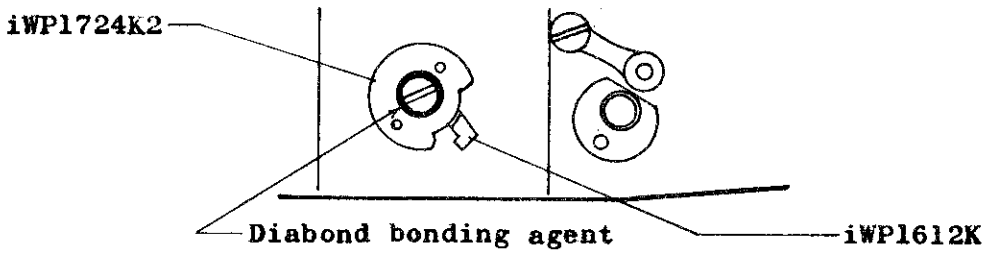
(3) Next, insert iWP1338 (sleeve) in the wind lever shaft and install the wind lever assembly. After winding the wind lever to make the lever end of iWP1612K (rear curtain lever) parallel with the rear line of the camera body, secure TL2151 (mirror lever assembly) by using a driver. Refer to the following diagram.



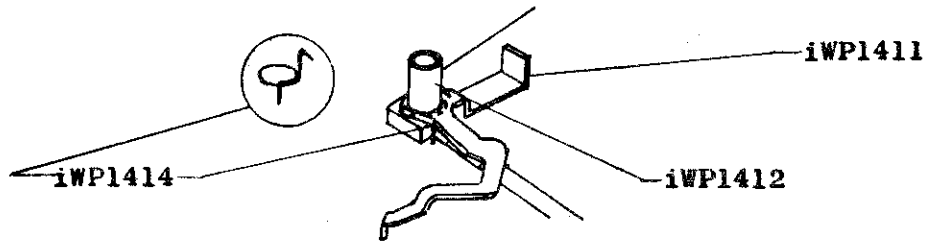
(4) Insert iWP1671K2 (mirror charging lever assembly) in the shaft, then tighten it with iWP1677 (screw). Fully wind the wind lever which was previously half wound, then insert iWP1673 (cam mirror charging) to the shaft and tighten it with As1.7x1.4 (screw). Positions of the cam mirror and the collar when releasing the shutter should be located as shown in the diagram. If the respective position is different, loosen the screw and correct the position. After determining each position, tighten the screw, then secure it with bonding agent (Diabond). Next, install iWP1376 (screw).



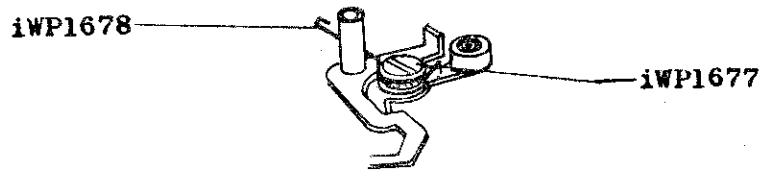
(5) Install iWP1724K2 (front curtain cam) on the shaft; then tighten it with NP1722 (screw) and secure the screw by using bonding agent (Diabond). Cam position at that time should be installed so that the rear curtain lever is visible through the dented portion of the cam.



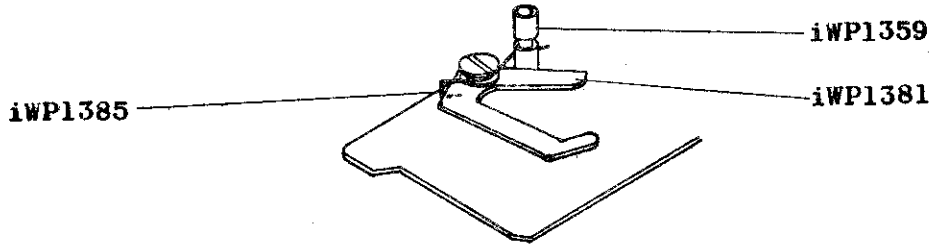
(6) Install iWP1744 (post screw). Next, install iWP1414 (spring), iWP1411 (safety arm), and iWP1412 (sleeve); then hook on iWP1414 (spring). Refer to diagram for hooking on the spring.



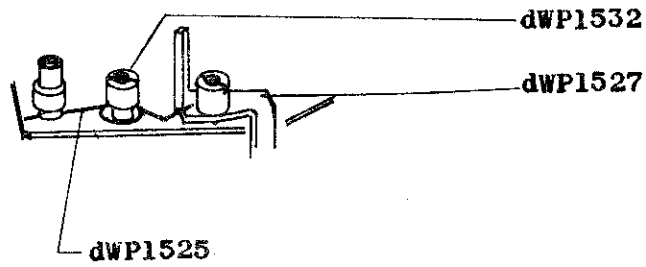
(7) Insert iWP1678 (spring) in iWP1677 (screw), and hook iWP1678 (spring) as shown in the diagram.



(8) Next, tighten iWP1381 (change-over lever) with iWP1383 (screw); then hook iWP1385 (spring) as shown in the diagram.



(9) Insert dWP1525 (spring in dWP1532 (post screw), and hook dWP1525 (spring) as shown in the diagram.

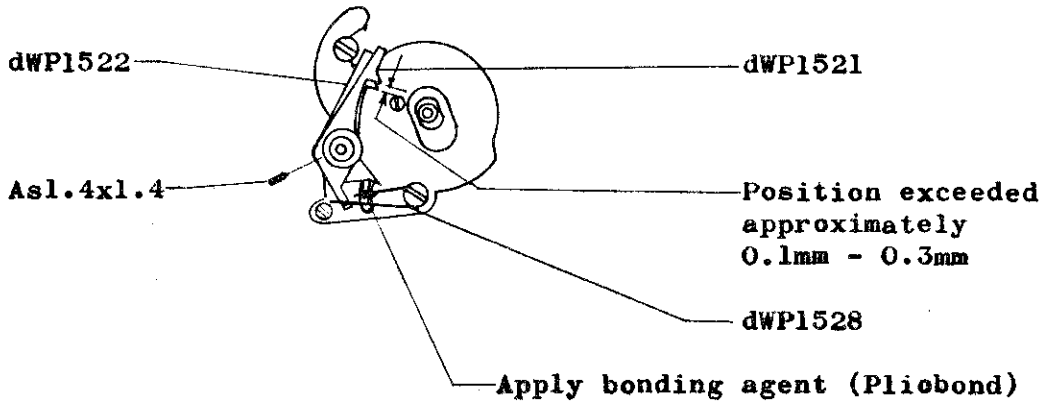


6. Reassembling the base plate for counter

(1) Secure iWP1531 (base plate for counter) with dWP1534 (anchor screw) and 3Dsl.7x3.5 (screw).

(2) Next, insert dWP1522 (pawl), dWP1521 (feeding ratchet), and dWP1332 (eccentric hub) in turn in iWP1335 (shaft); then tighten the shaft with Asl.4x.14B (setscrew). Insert dWP1528 (spring) in dWP1534 (anchor screw); then hook the spring as shown in the diagram, securing one end of the spring with bonding agent (Pliobond).

Positioning of the pawl and the feeding ratchet is to be performed by first closing the back cover and fully winding the wind lever. Slightly loosen Asl.4xl.4 (setscrew) and turn the eccentric hub clockwise; then tighten Asl.4xl.4 (setscrew) at the position where the end of the feeding ratchet protrudes approximately 0.1 - 0.3mm beyond the end of the pawl.



(3) After the above reassembling operation, install iWP1515K2 (exposure counter assembly). At first, open the back cover, and install the exposure counter on the sleeve which was previously inserted; then hook one end of the spring which is attached to the exposure counter in the hole of the counter dial and insert the other end in the hole of iWP1514 (bracket). Turn the exposure counter counterclockwise and slightly raise it at the point where it comes to a halt after passing over the stopper. Turn the exposure counter counterclockwise until it stops. When releasing it, the counter smoothly returns to its original point.

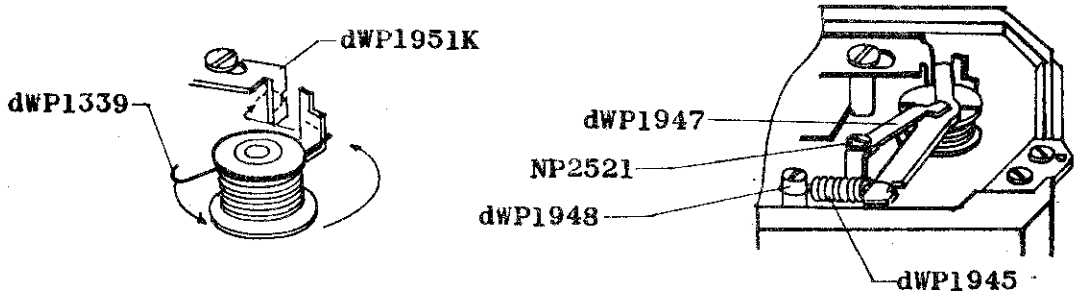
7. Setting the counter index

Install iWP1519 (counter indicator), then close the back cover. When finished winding operation three times, adjust the position so that figure 1 on the counter dial coincides with the tip of triangle mark of iWP1519 (counter indicator) by moving the counter indicator.

Gap between the counter indicator and the exposure counter circumference must be adjusted as narrowly and as evenly as possible.

After the above-mentioned adjustment, secure 3Bsl.7x3.5 (screw) with bonding agent (Diabond).

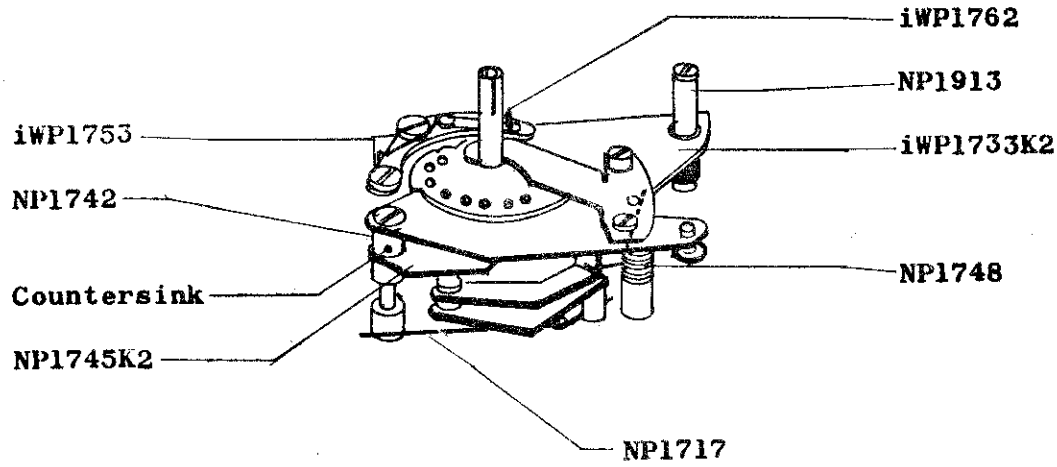
8. Turn the camera upside down and hook dWP1339 (spring) to dWP1951K (switch lever) as shown in the diagram. Next, insert dWP1943K2 (lever assembly) in the wind lever shaft and secure dWP1947 (spring) with NP2521 (screw); then hook dWP1945 (spring) on the ends of dWP1948 (anchor) and the lever as shown in the diagram.



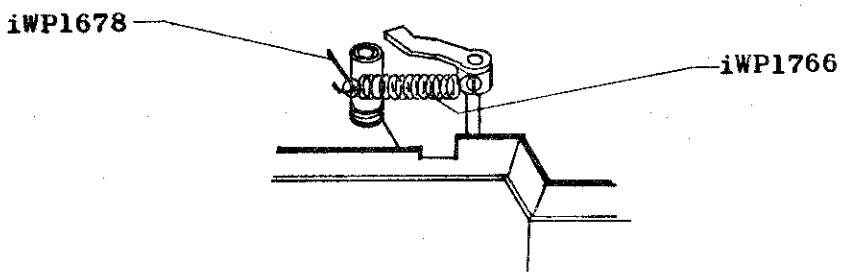
9. Installing iWP1733K2 (base plate assembly)

(1) Turn the lever of NP1767K2 (release lever assembly) toward the outside. Position NP1913 (shutter release rod) and NP1748 (spring); then place iWP1733K2 (base plate assembly) on the predetermined position. In this case, confirm that the tip of iWP1762K (transmission lever assembly) enters the hole of iWP1753K2 (slow speed arm assembly). Next, insert NP1742 (eccentric collar) in NP1745K2 (lever assembly) so that it is inserted from the side; then secure it with NP1749 (screw) after setting the previously scribed line and the countersink of collar.

Subsequently hook on NP1748 (spring) and NP1717 (spring) as shown in the diagram.



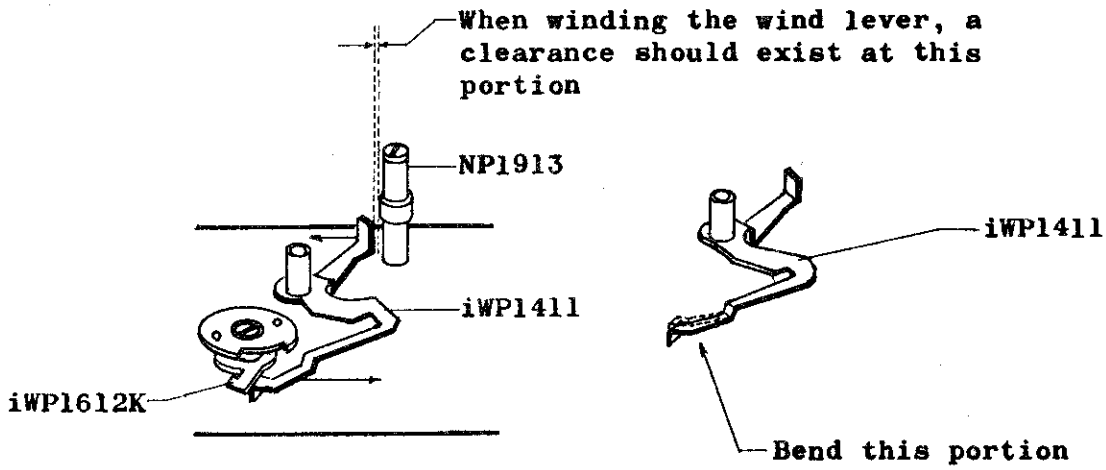
(2) Insert iWP1366 (spring) in iWP1376 (screw); then put iWP1818 (spacer) between iWP1817 (fixture top cover) and the base plate, and secure it with cWP1833 (screw). Next, hook iWP1766 (spring) to iWP1678 (spring) as shown in the diagram.



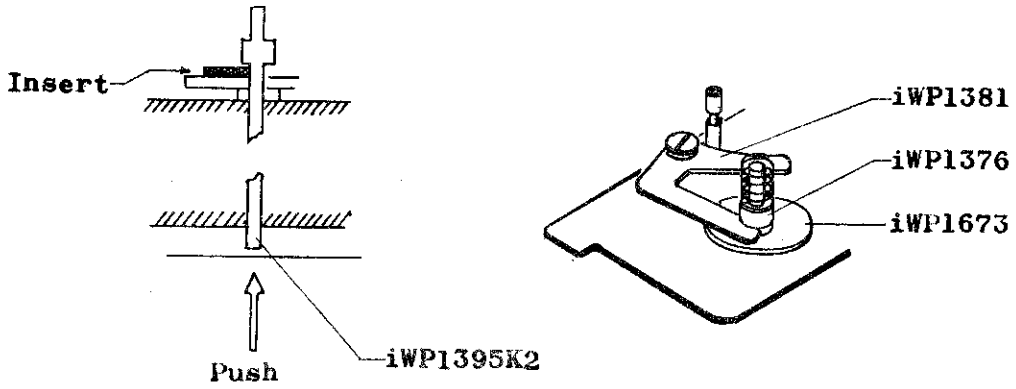
10. Check and adjustment of shutter release and sprocket

(1) Check relations between actions of iWP1411 (safety arm) and motions of iWP1913 (shutter release rod).

At first, wind the wind lever. Check whether or not the shutter is released by the release rod when depressing the shutter releasw rod. If the shutter release rod cannot be depressed because it is blocked by the safety arm, adjust the shutter release rod by bending the tip of iWP1411 (safety arm) as shown in the diagram.



(2) Next, check the action of iWP1361K2 (sprocket assembly) during rewinding. At first, open the back cover and check that while turning the sprocket counterclockwise with a finger, the sprocket does not rotate. Next, when rotating the sprocket by this method by pushing iWP1395K2 (sprocket shaft), the sprocket must rotate. If it does not rotate, adjust the movement of iWP1381 (change-over lever) so that the change-over lever enters between iWP1673 (cam mirror charging) and iWP1376 (screw). Refer to the following diagram.



(3) After completing the foregoing checkups, perform a shutter speed check.

Next, install dWP1781K2 (pulley assembly) and also attach the top cover assembly and the bottom cover assembly. (Refer to pages on the shutter when checking the adjusting shutter speed).

III. Inspecting and adjusting shutter speed

1. Measuring instruments

Complete set of pulse counters

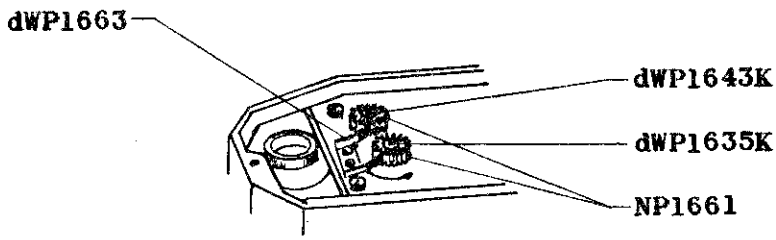
Focal plane shutter tester

Shutter speed adjustment should be performed with the mirror housing assembly attached.

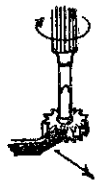
2. Check and adjustment of front and rear curtains

(1) Set dWP1725K2 (shutter speed cam) at 1/1000 second and use a pulse counter type focal plane shutter tester having 32mm right and

left distances, speeds of the front curtain and rear curtain adjusted within 11.5 - 12.5 millisecond. If not, adjust speed by using the following methods to obtain the above condition, turning dWP1635K (front curtain spring shaft) or dWP1643K (rear curtain spring shaft).



(2) When turning each spring shaft counterclockwise, curtain speed is increased; when returning them clockwise after detaching dWP1663 (pawl), curtain speed is decreased.



Detach the pawl holding the spring shaft with a driver, then turn it

Note: When detaching dWP1663 (pawl), hold the spring shaft with a driver to prevent a sudden return of the spring shaft; then turn it.

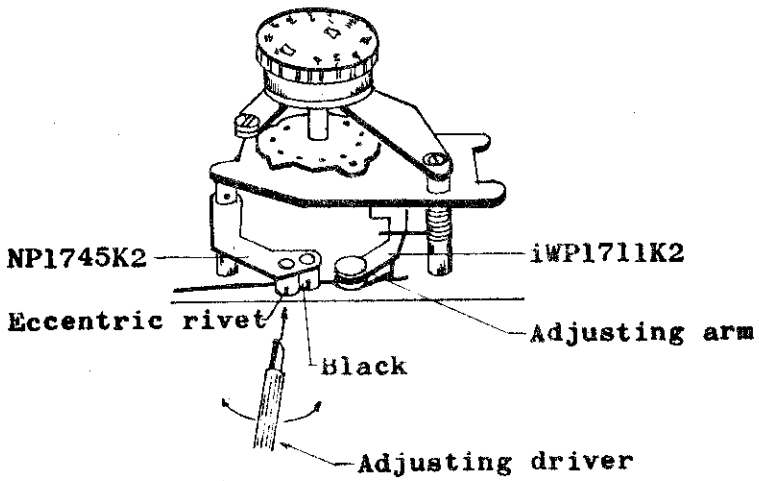
(3) When there is no tester, wind the front curtain shaft 3 1/2 turns and the rear curtain spring shaft 3 - 3 1/2 turns counterclockwise from a completely loosened condition of dWP1635K (front curtain spring shaft) and dWP1643K (rear curtain spring shaft). With this operation, nearly the same speed as that mentioned in (1), above, will be obtained.

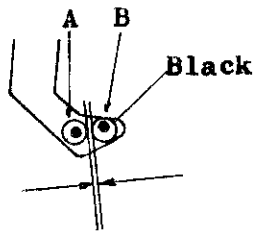
3. Adjustment of high speed

(1) Use the pulse counter type focal plane shutter tester.

(2) Check and adjust 1/125 second speed

The shutter speed which was performed by setting the shutter speed ring at 1/125 must be 7.81 millisecond (range of allowance: 4.65 - 13.1ms). When the shutter speed is not within the allowable range, adjust it through the following method. At first, pull out iWP1711K2 (release lever assembly) and NP1745K2 (lever assembly); then use an adjusting driver to adjust the speed by turning the eccentric rivet which was caulked on the lever assembly.
In this case, be careful that the release lever and the lever assembly spring do not to come off due to drawing out excessively.





Distance between A and B

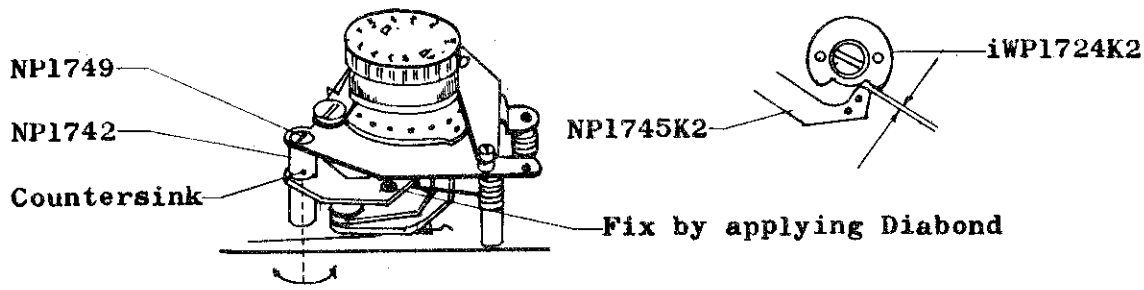
Turn the eccentric rivet to the right or left, and if the distance between A and B widens, shutter speed is increased. Contrarily, when the distance becomes narrower, shutter speed is decreased. In this case, it is better to adjust speed without turning the B eccentric rivet (black).

(3) Checking 1/60 second speed

The shutter speed which was performed by setting TL1776K2 (shutter speed ring) at 1/60 must be within 15.6 - 22.1 millisecond. If the shutter speed is not within this range, adjust the eccentric rivet so that both 1/125 and 1/60 enter this allowable range. After adjustment, secure the eccentric rivet to the caulked portion with Diabond.

(4) Checking and adjusting 1/1000 second speed

The shutter speed which was performed by setting TL1776K2 (shutter speed ring) at 1/1000 second must be 0.976 millisecond (range of allowance: 0.58 - 1.64ms). If the shutter speed is not within this range, adjust the speed by turning NP1742 (eccentric collar).



Since the collar has a countersink for adjusting the eccentric quantity when turning NP1742 (eccentric collar), adjustment should be performed by turning the collar after loosening NP1749 (screw). In this case, turn the countersink position to the rear edge of the body, and when turning it clockwise from that position, distance between iWP1724K2 (front curtain cam assembly) and NP1745K2 (lever assembly) widens, slowing the shutter speed. When turned counterclockwise, distance between the front curtain cam and the lever narrows, increasing the shutter speed.

(5) Checking and adjusting 1/500 second speed and exposure unevenness

1) Set TL1776K2 (shutter dial) on 1/500. The shutter speed must be 1.95 millisecond (range of allowance: 1.16 - 3.28ms). If the shutter speed is not within this range, adjust by using the method for 1/1000 second so that both 1/1000 and 1/500 enter this allowable range.

2) When there is a remarkable difference on the right and left sides of the image at 1/1000 second, regulate the slit width at the start and finish of the front curtain and rear curtain movement by turning dWP1635K (front curtain shaft).

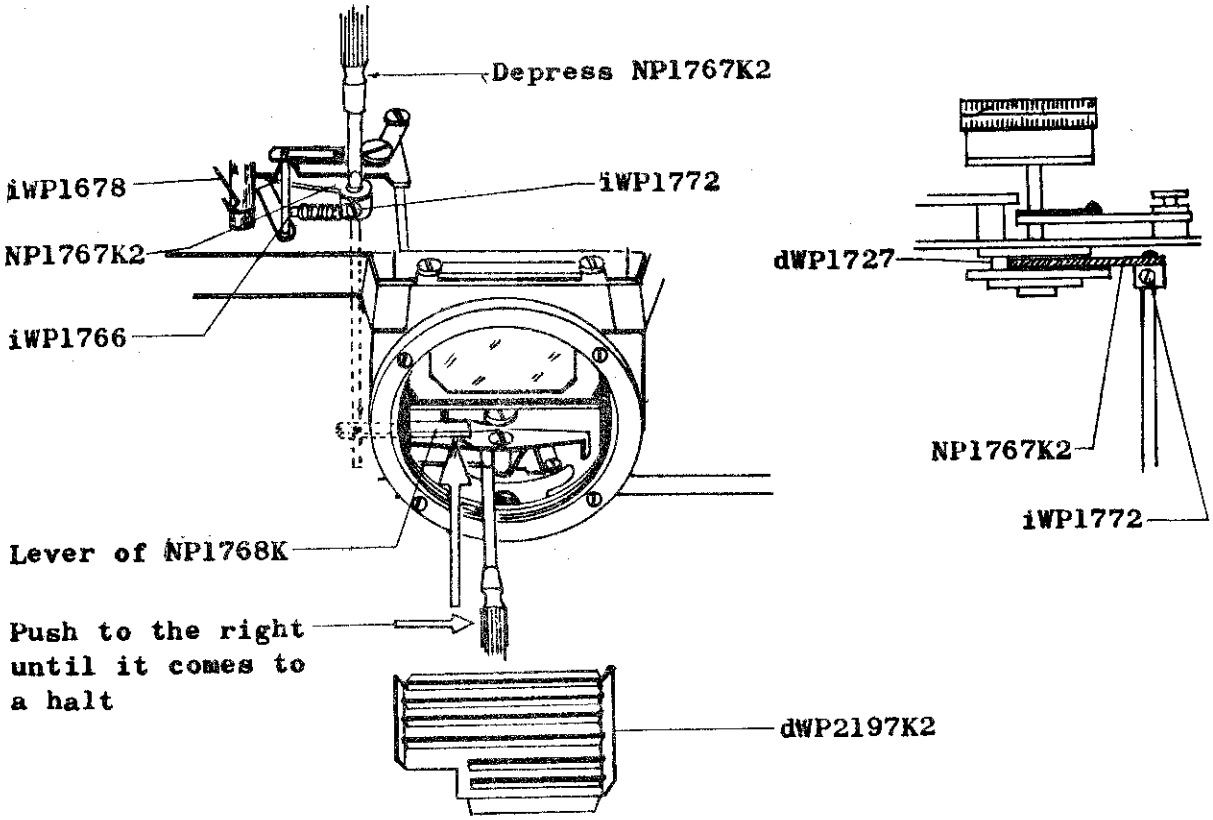
Since variations are generated on dWP2500 (governor) and at slow speed when adjusted on dWP1643K (rear curtain spring shaft), avoid adjustment on the curtain spring shaft as far as possible. After adjustment, reconfirm the shutter speed at 1/1000 or 1/500 and 1/60 second.

(6) Checking and adjusting the position of NP1768K (shaft)

This should be performed after finishing high-speed adjustment.

Remove dWP2197K2 (reflection absorber).

Wind the wind lever after setting TL1776K2 (shutter speed ring) at the position of 1/4 second. Next, loosen iWP1772 (screw), then remove iWP1766 (spring) from iWP1678 (spring). Contact NP1767K2 (release lever assembly) with dWP1727 (change-over cam). To maintain that position, depress the release lever from the upper side with a driver, as shown in the diagram; then push the lever of NP1768K (shaft) until it comes to a halt by striking the lever of dWP2500 (governor); then, as shown in the diagram on the governor, move the point to the right. At the point where it stops, tighten iWP1772 (screw) and secure it with Diabond bonding agent. After that, hook on the spring.

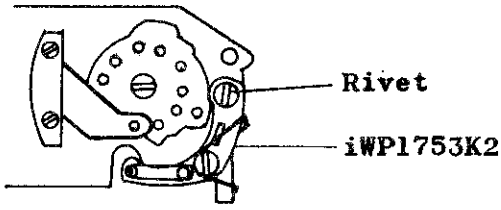


4. Checking and adjusting the slow speed

(1) Wind the wind lever after setting the shutter speed ring on B. When depressing and releasing the shutter button, slow must not be applied. If slow is still applied, check the slow speed after re-adjusting the position of the release lever.

(2) Checking and adjusting 1/4 second

When releasing the shutter, after setting TL1776K2 (shutter speed ring) on 1/4 second, the speed must be 250 millisecond (range of allowance: 177 - 354ms). If not, adjust the speed by turning the rivet of iWP1753K2 (slow-speed arm assembly).



5. Check the shutter speed for 1/30, 1/15, and 1/2, confirming that they are within the allowable range.

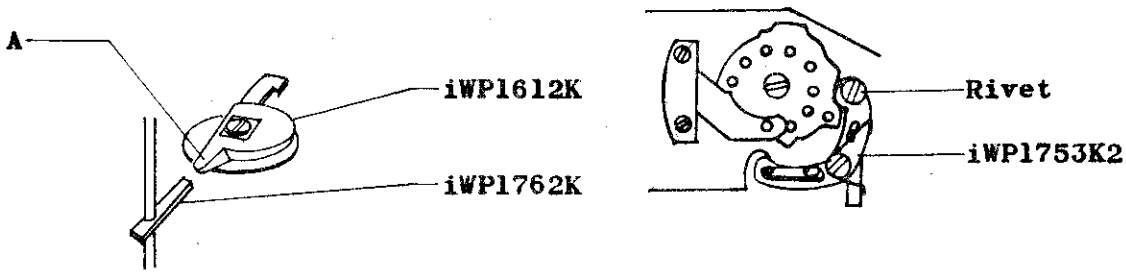
   1/30 second is 31.2ms (range of allowance: 22.1 - 44.2ms)

   1/15 second is 62.5ms (range of allowance: 44.2 - 88.4ms)

   1/2 second is 500ms (range of allowance: 354 - 707ms)

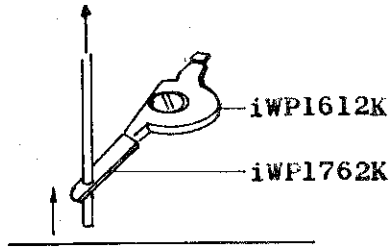
6. Checking and adjusting the position of iWP1762K (transmission lever assembly)

   (1) Set TL1776K2 (shutter speed ring) at 1/60, 1/125, 1/500, and 1/1000 second respectively, and wind up the wind lever. Midway, tip A portion of iWP1612K (rear curtain lever) must never contact iWP1762K (transmission lever) at the position where the rear curtain lever passes through the tip of the transmission lever. When it makes such a contact, adjust it by turning the rivet of iWP1753K2 (slow-speed arm assembly).

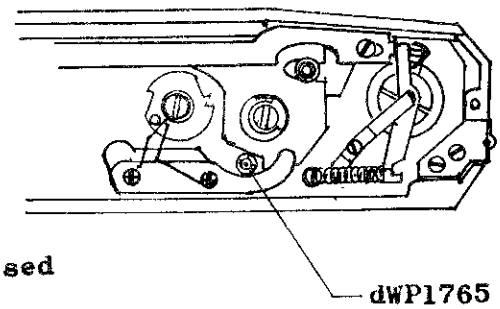


(2) Checking and adjusting the position of transmission lever assembly height

Set TL1776K2 (shutter speed ring) on 1/8 and wind up the wind lever. When the A portion of iWP1612K (rear curtain lever) passes through iWP1762K (transmission lever assembly), the transmission lever must be raised as shown in the diagram. If it is not raised, adjust it by turning dWP1765 (adjusting screw).



Transmission lever must be raised

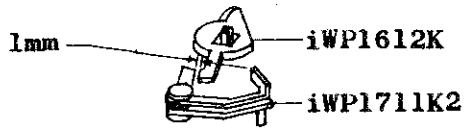


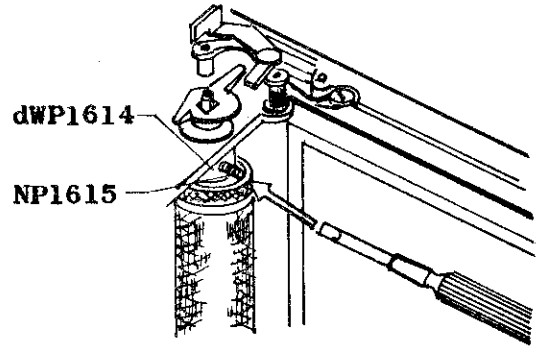
(3) Checking and adjusting 1/30 second transmission

Set TL1776K2 (shutter speed ring) on 1/30 second and wind the wind lever. When A portion of iWP1612K (rear curtain lever) passes through iWP1762K (transmission lever), this lever is raised, releasing the shutter. When the rear curtain lever is returned, iWP1762K (transmission lever) must not be raised. If it is raised, re-adjust it with dWP1765 (adjusting screw).

7. Checking and adjusting the rear curtain starting position

(1) Wind the wind lever, and in a condition that the lever is still streased, the clearance between iWP1612K (rear curtain lever) and iWP1711K2 (release lever assembly) should be the same as shown in the diagram; i.e. 1mm,

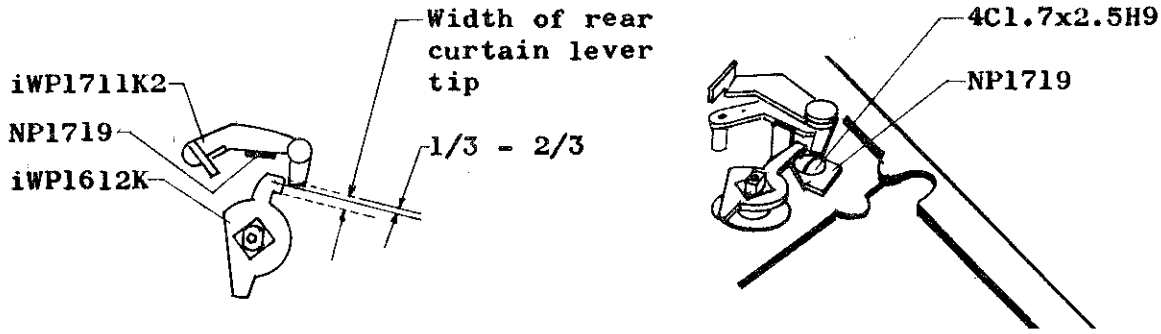




If this condition is not so, slightly loosen NP1615 (screw) of dWP1614 (coupler) and change the installation positions of dWP1614 (coupler) and iWP1612K (rear curtain lever) to attain the above-mentioned distances. After the adjustment, re-secure the screw correctly.

(2) Next, when winding the wind lever, the tip portion of iWP1711K2 (release lever assembly) should be located approximately 1/3 - 2/3 the width of iWP1612K (rear curtain lever tip). If the tip does not locate on that position, loosen 4C1.7x2.5

(screw) of NP1719 (stopper) and adjust the position by sliding NP1719 (stopper).



After adjustment, secure 4C1.7x2.5H9 (screw) with Diafix bonding agent.

IV. Disassembling and reassembling the exposure meter

1. Disassembling the exposure meter

(1) Remove the top cover.

(2) Remove the front cover.

(3) Remove dWP2112 (penta prism). To remove the prism, at first, lower one end of dWP2114 (retaining spring) by hooking with a small pair of pliers, and pull to the side to detach it; then raise the prism and remove it.

(4) Using a soldering iron, detach each cord which was wired on the resistor base of TL2941 (exposure meter). This time, do not detach the H.L. cord for A photometer.

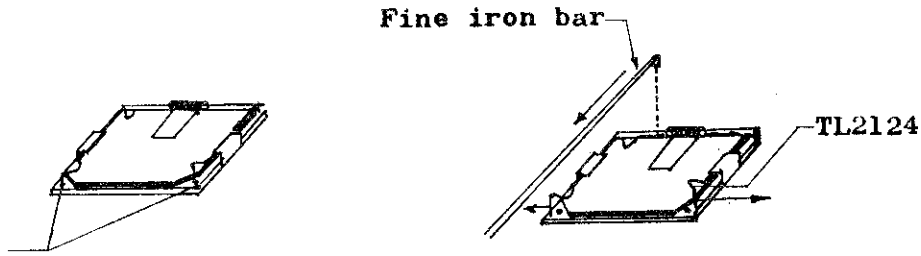
(5) Detach the resistor base after removing 2.5Bsl.7x3 (screws) for resistor base of the exposure meter.

(6) To remove TL2956 (chainlet), throw the switch to the S position and detach TL2956 (chainlet) from TL1914 (chain ring) of TL1856 (switch cover). Then remove it from TL2949K2 (indication assembly) and remove the A photometer together with the resistor base. Next, detach the chainlet from the chain ring installed on the indicator.

(7) To remove the exposure meter galvanometer, detach TL2943 (spring) from dWP2946 (anchor screw). Next, detach the chainlet from the galvanometer and remove TL2944 (post screw), dWP2946 (anchor screw), and 3Bsl.7x3 (screws). Then TL2941 (galvanometer) can be detached together with TL2951 (meter base plate). Next, when removing two dWP2952 (screws), the galvanometer can be removed from TL2951 (meter base plate).

(8) To remove the CdS cells, since the tip portion of TL2124 (retaining spring) is secured with bonding agent (D.B bond), apply a solvent (Ketone); then raise and open outward the tip bent portion of TL2124 (retaining spring) from the hole of TL2121K (mirror plate assembly). Insert a fine steel bar having a hooked tip between the mirror plate and TL2133 (mirror), as shown in the diagram;

then hook the mirror and pull it out to the operator's side, slightly raising TL2121K (mirror plate). Now the mirror can be completely removed. Since the CdS is glued to the dented portion of the mirror plate, apply a small quantity of solvent (Ketone) around it, then raise and remove the CdS. In this case, be careful not to crack the CdS cells.



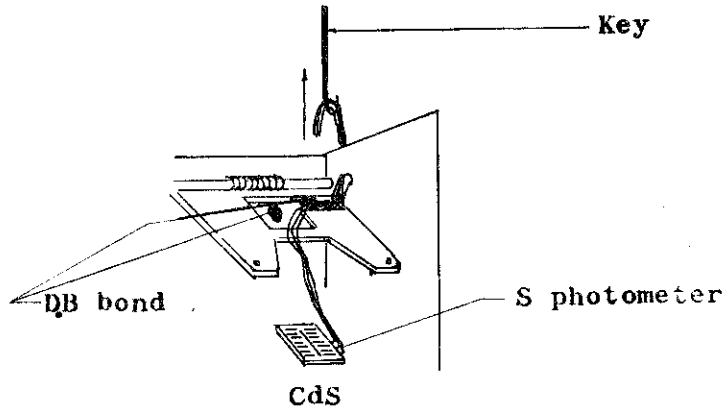
Dissolve with solvent (Ketone)

Open to the side

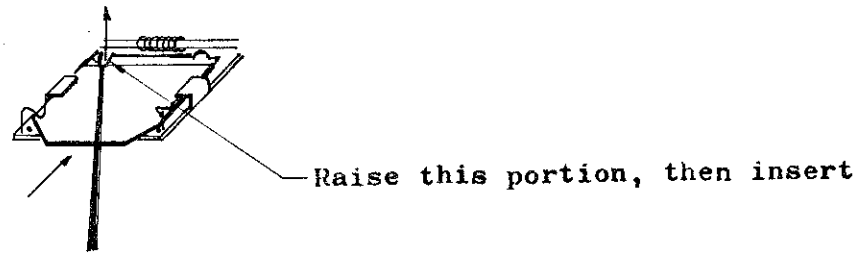
Next, detach the cord. Do not spill solvent on the cord attached to the body. Pull out the CdS together with the cord by ripping it off.

2. Reassembling and adjusting the exposure meter

(1) To install the CdS cells, pass the cord of the S photometer as shown in the diagram and pull up the cord by using the T-dWP4 tool. Apply Diabond bonding agent to the dented portion of TL2121K (mirror plate), and attach the cord end and the CdS cell. This time, attach the cord end and CdS cells near the operator's side so that the cord is not cut by the retaining spring.



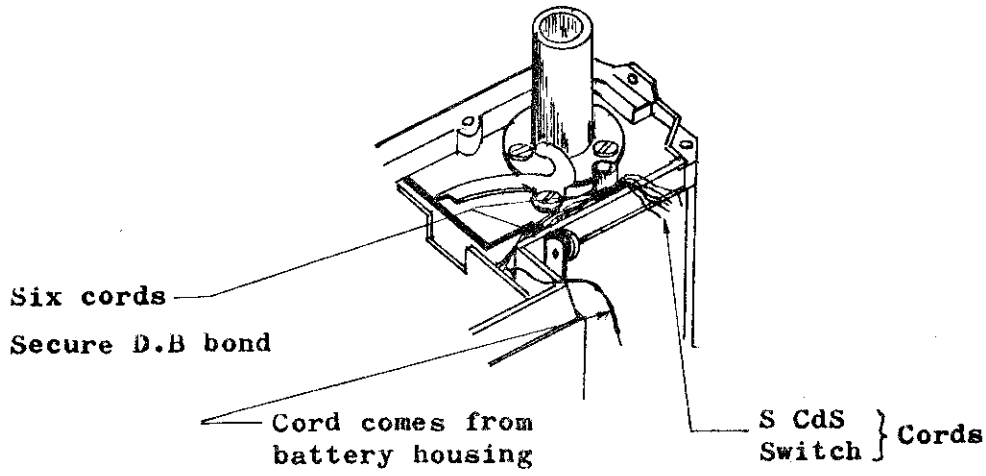
(2) To install the mirror, at first, insert TL2124 (retaining spring) but do not insert its tip into the mirror plate hole. Slip it outside, the same as in the disassembling procedure; then slightly raise the mirror plate, inserting the mirror in parallel into 2121K (mirror plate). Further, also slightly raise the back portion of TL2124 (retaining spring) and push the mirror in it; then insert the tip of the retaining spring into TL2121K (mirror plate hole) and secure it with Diabond.



(3) To install TL2951 (meter base plate), make the length of the drawn out cord long enough to reach the resistor base; then attach it to the body by using D.B bond,

together with the wiring cord coming from the switch (as shown in the diagram). The cord (blue) coming from dWP2931 (battery housing) is left near TL2928K2 (pulley assembly).

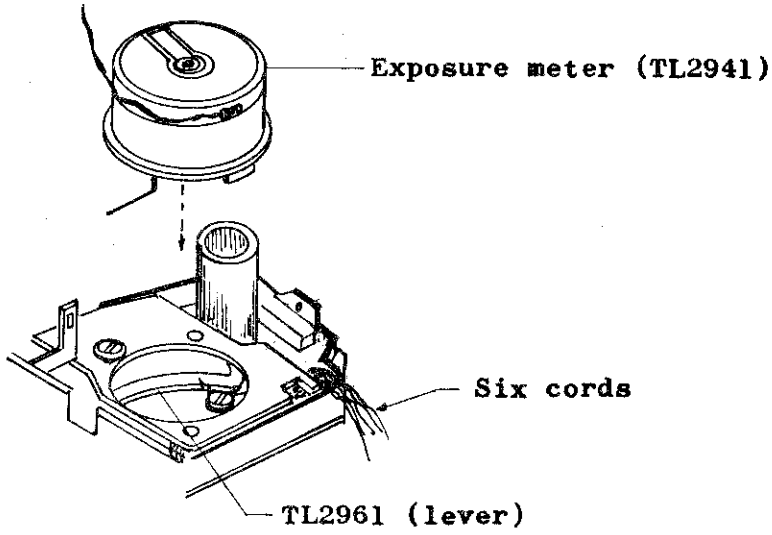
Take out six cords under TL2951 (meter base plate) and install the meter base plate; then secure it with TL2944 (post screws), dWP2946 (anchor screws), and 3Bsl.7x3 (screws).



(4) Reassembling the exposure meter

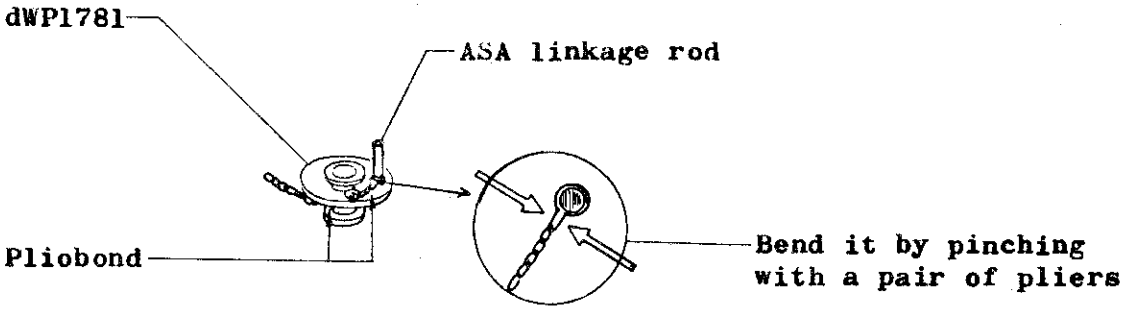
Reinstall the exposure meter, placing its pointer as shown in the diagram. Pay attention to the pointer tip so that it does not strike the TL2115K (condenser lens assembly). At this time, position of TL2961 (lever) must be stopped at the position shown in the diagram. If it does not stop in that position, check whether or not TL2963

(spring) is detached. Tighten TL2941 (exposure meter) with two TL2952 (screws), and check the rotation of TL2941 (exposure meter).



5. Reassembling and adjusting dWP1789 (chainlet)

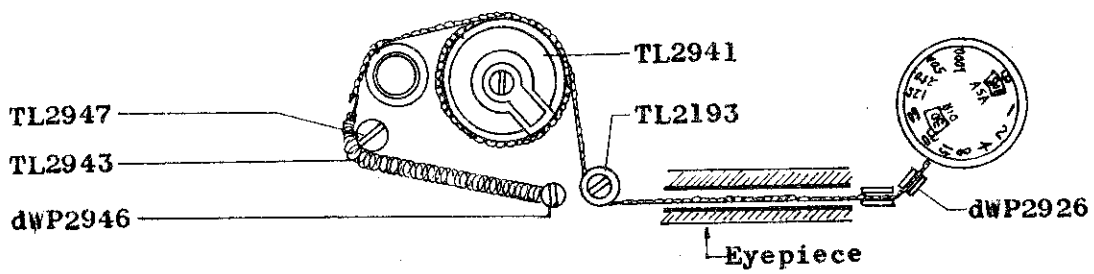
(1) To install the chainlet, at first, insert the ring of the chainlet end into the ASA linking rod of dWP1781K2 (pulley); then pass the chainlet downward through the pulley hole by pinching it with pliers as shown in the diagram, securing it with Pliobond on the chainlet upper and lower portions.



(2) Insert dWP1781K2 (pulley assembly) into the shaft of iWP1725K2 (shutter speed cam assembly); then place dWP1789 (chainlet) through dWP2926K2 (pulley assembly) and the lower side hole of iWP1813K2 (eyepiece window assembly). Next, turn dWP1781K2 (pulley assembly) 1 2/3 turns counterclockwise, install the shutter dial, and tighten cWP1778 (screw) (refer to (2) of reassembling the top cover for the shutter speed ring reassembling method).

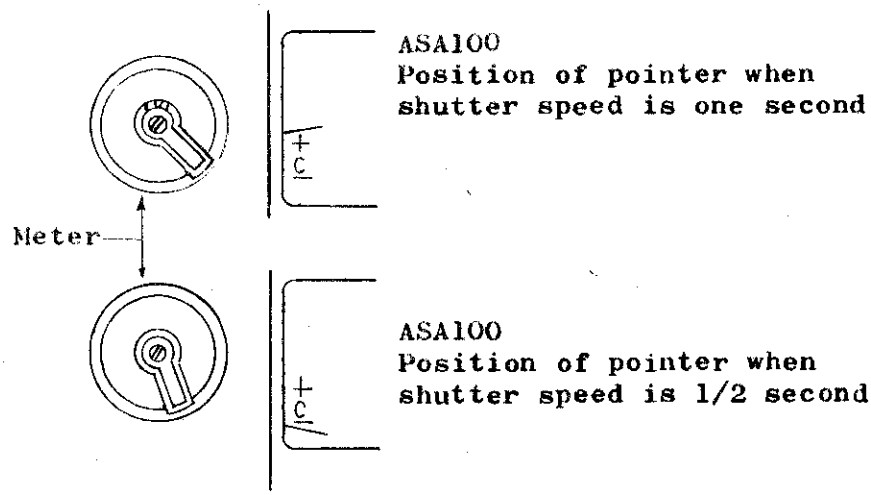
(3) Next, set the shutter speed or B by turning the shutter speed ring, and set ASA to 800.

(4) Place the removed chainlet under iWP1813K2 (eyepiece window) on the pulley of TL2193 (screw), turning the chainlet counterclockwise one time on the exposure meter body; then hook it on the chainlet ring so that the hooked portion of TL2943 (spring) connects with the chainlet at the point where the spring is turned around TL2947 (guide screw), while maintaining the end of the chainlet as shown in the diagram. When the chainlet is too long (due to replacement), cut it and remove the chainlet at the cut portion.



6. Adjusting the pointer position

Position of the pointer when setting ASA100 (shutter speed) at one second should be above (+) of the condenser lens pointer graduation due to the action of TL2961 (lever). When setting on 1/2 second, the position should be under (-). To attain the above-mentioned condition, adjust by turning the exposure meter.



When turning the exposure meter clockwise, the pointer shifts toward the (-) side; when turning counter-clockwise, the pointer moves toward the (+) side. After adjusting through this procedure, secure dWP1789 (chain-let) and the exposure meter by using Cyanobond or Pliobond as shown in the diagram.

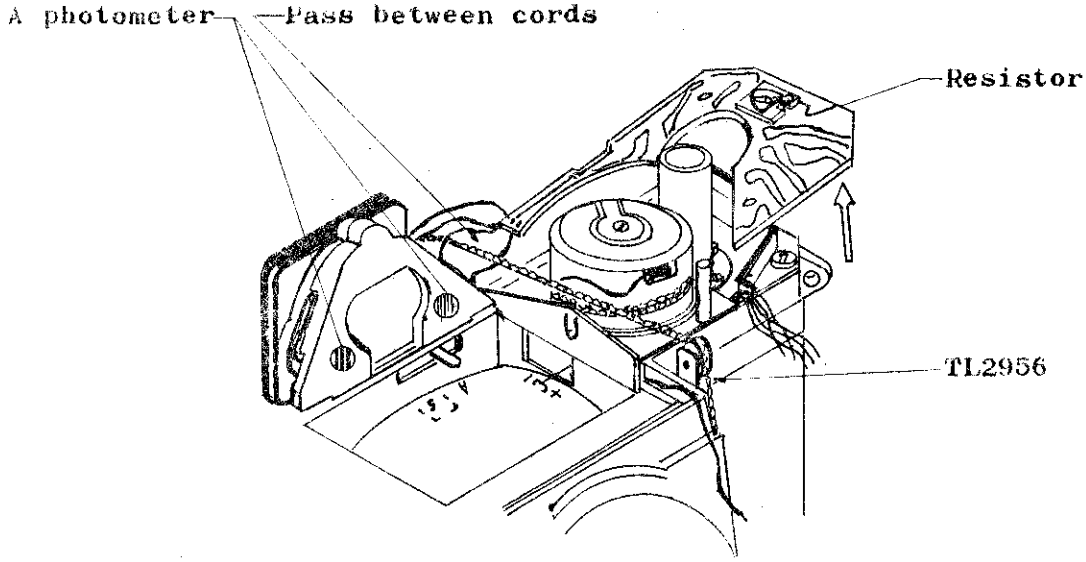
Use Pliobond on front side of body

Use Cyanobond on rear side of body

(Securing position at ASA100, shutter speed B)

7. Reassembling the A photometer

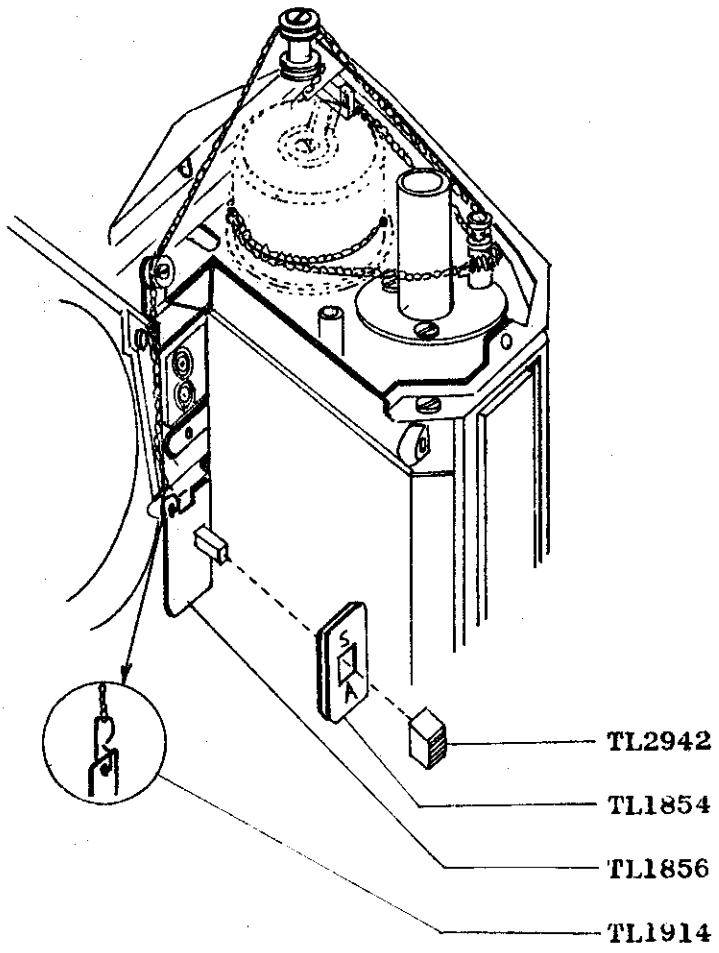
Insert the A photometer in the eyepiece window and raise the resistor base as shown in the diagram.



8.

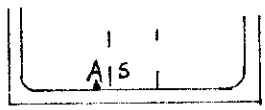
(1) Install the chainlet of the A.S. change-over switch. Throw the change-over switch to the S position and place TL2956 (chainlet) on TL1911 (chain ring) of TL2949K (indicator); then pass it through the pulley

as shown in diagram and hook it on TL1914 (chain ring) mounted on TL1856 (switch cover) of the change-over switch. In this case, pass the chainlet between the cord of the A photometer cords and the red cord as shown in the diagram.

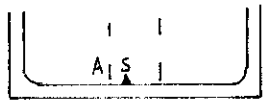


(2) Next, check the change-over switch. When changing the switch on the A position, the pointer of the

condenser lens should be on the A portion of the condenser graduation; when changing the switch to the S position, the pointer should be on the S portion (letter width). If not so, adjust it by replacing the chainlet on the chain ring. If the chainlet is too long because of replacement, cut it.



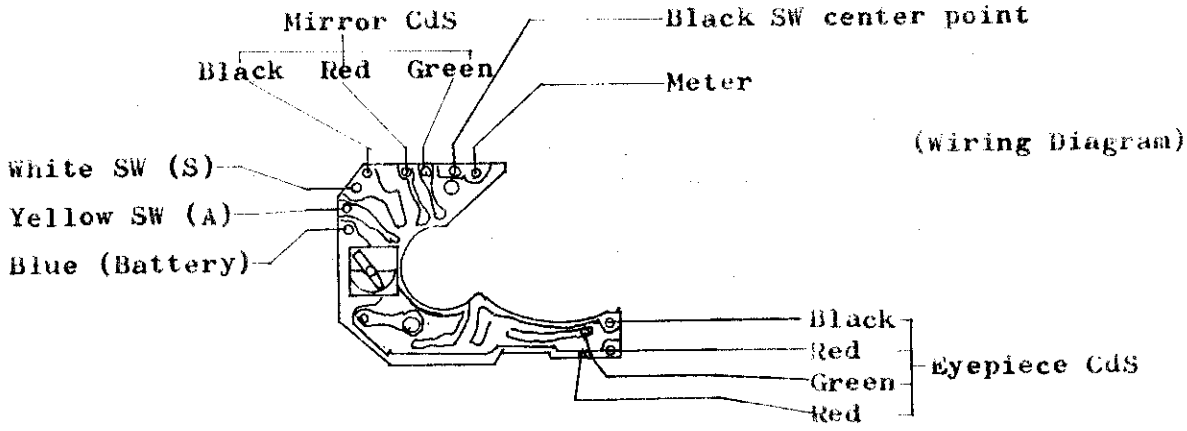
Switch changeover (A)



Switch changeover (S)

Adjust the change-over pointer to enter the letter width

9. Install the resistor base. Tighten the resistor base with two 2.5Bs1.7x3 (screws) for resistor base, then solder each cord by using a soldering iron. Refer to diagram.

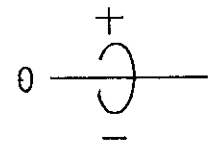


Insert dWP2112 (penta prism). Gather each cord and insert then under the resistor base. (This is performed to prevent the cords from being pinched between the body and the cover).

10. Adjusting the exposure meter

Face the camera towards a diffused light source in accordance with the following brightness, then throw the exposure meter to ON position. The pointer in the finder must fall within the range of the ℑ mark for both the A photometer and S photometer.

Brightness value	Aperture value	T speed	ASA
BV 7	F5.6	1/4	100
BV 9	F5.6	1/15	100
BV 12	F5.6	1/125	100
BV 15	F5.6	1/1000	100



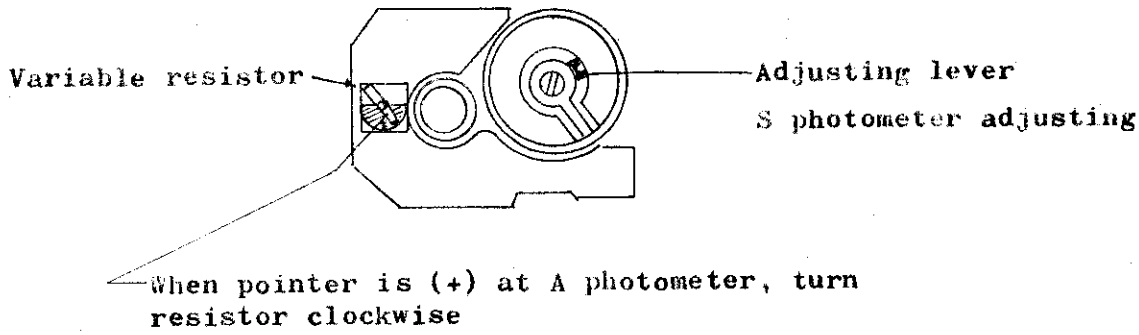
Adjusting method when exceeding the allowable range.

Throw the switch to the S position and adjust the pointer so that it comes to the center of the ℑ mark at BV12, F5.6, T1/125 by slightly moving the adjusting lever on the exposure meter. When adjusting the A photometer, turn the variable resistor located on the resistor base so that the pointer comes to almost the same position as S. When adjustment is done by turning the adjusting lever, reconfirm the pointers for one second and 1/2

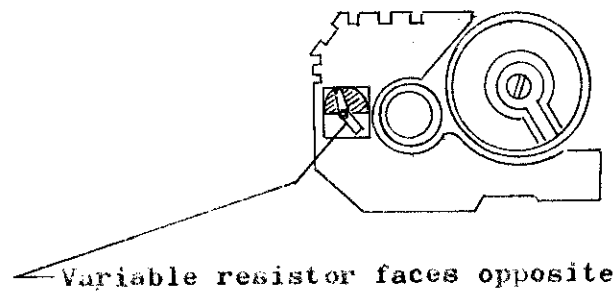
second. If the pointer does not fall within the allowable range even after performing the above-mentioned adjustment, it is necessary to replace the exposure meter.

Since the exposure meter is adjusted individually for each resistor base, the S CdS, the A CdS for every one set, the resistor base or the CdS, and so on cannot be interchanged with each other.

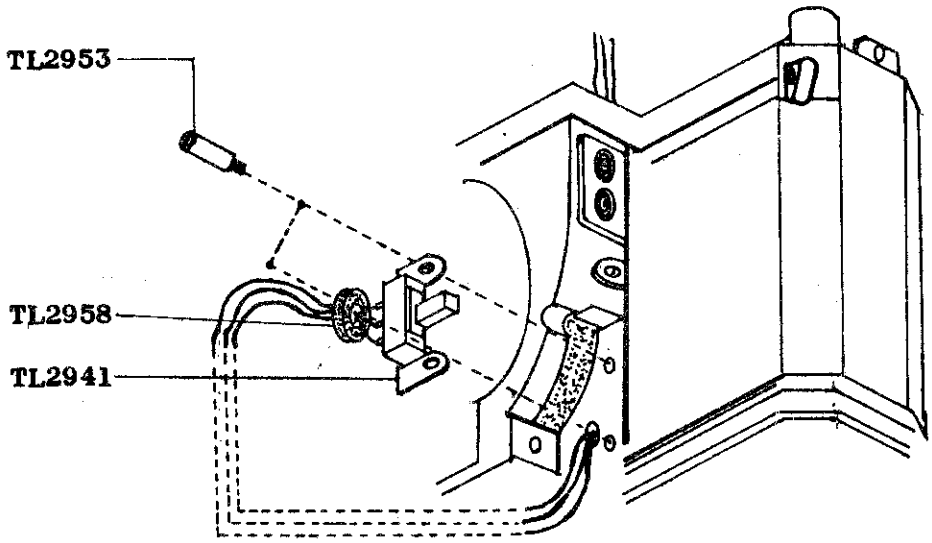
(Old resistor base)



(New resistor base)



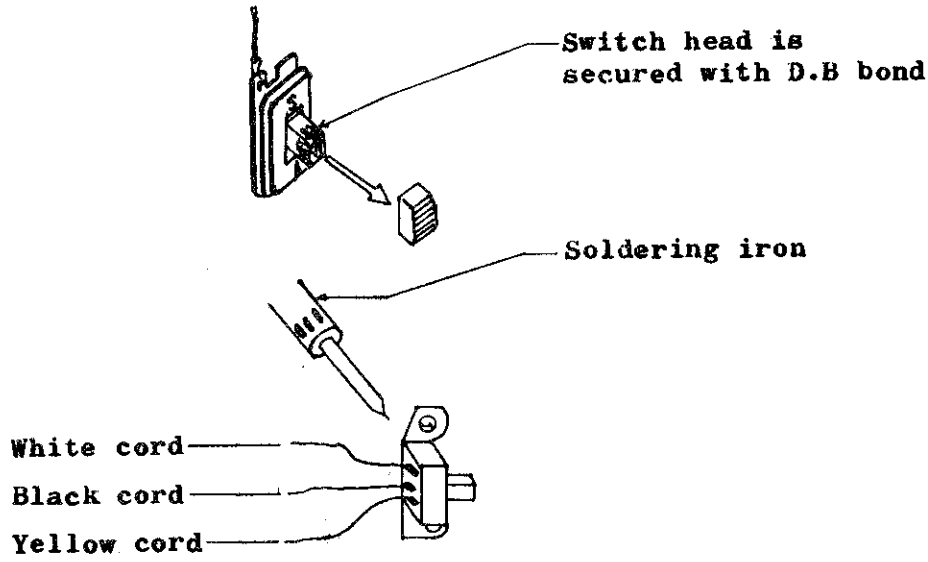
Wiring diagram is shown separately



11. Disassembling and reassembling the switch

(1) Remove TL2942 (switch head), TL1854 (indication plate), and the switch cover. Refer to the diagram pp. . Although TL2942 (switch head) is secured with D.B bond, a solvent (Ketone, thinner, ether, and so forth) cannot be used because it will dissolve TL2942 (switch cover); so pull it out as is.

Remove TL2953 (screw) and take out the switch; then disconnect each cord by using a soldering iron.



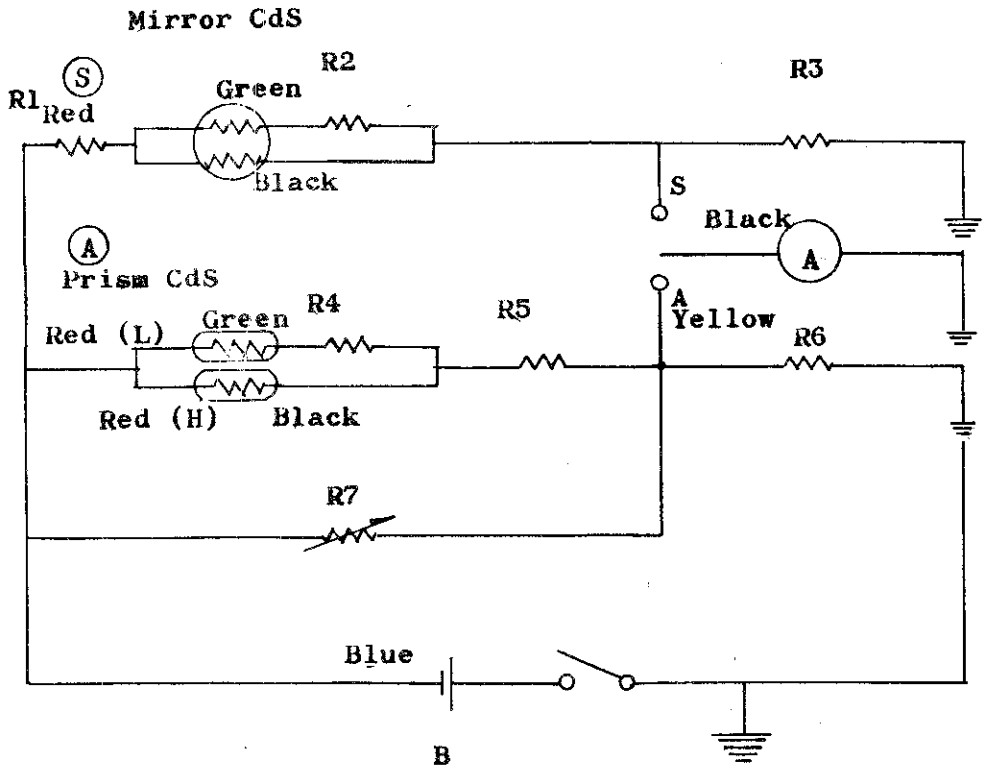
Disconnect with soldering iron

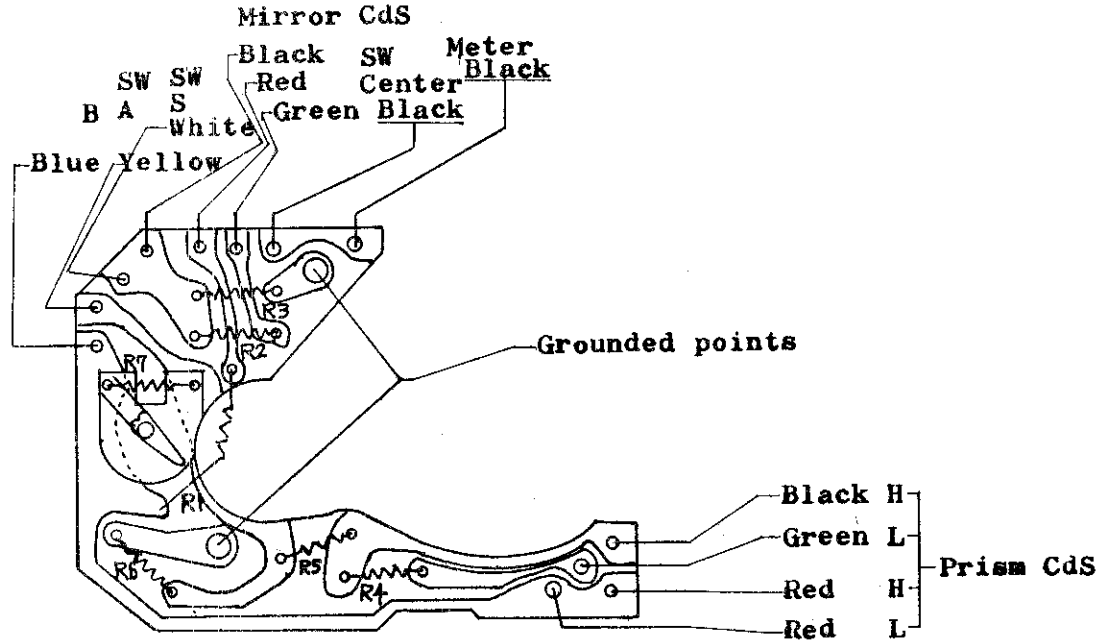
(2) Reassembling the switch

Install each cord according to each color, using a soldering iron.

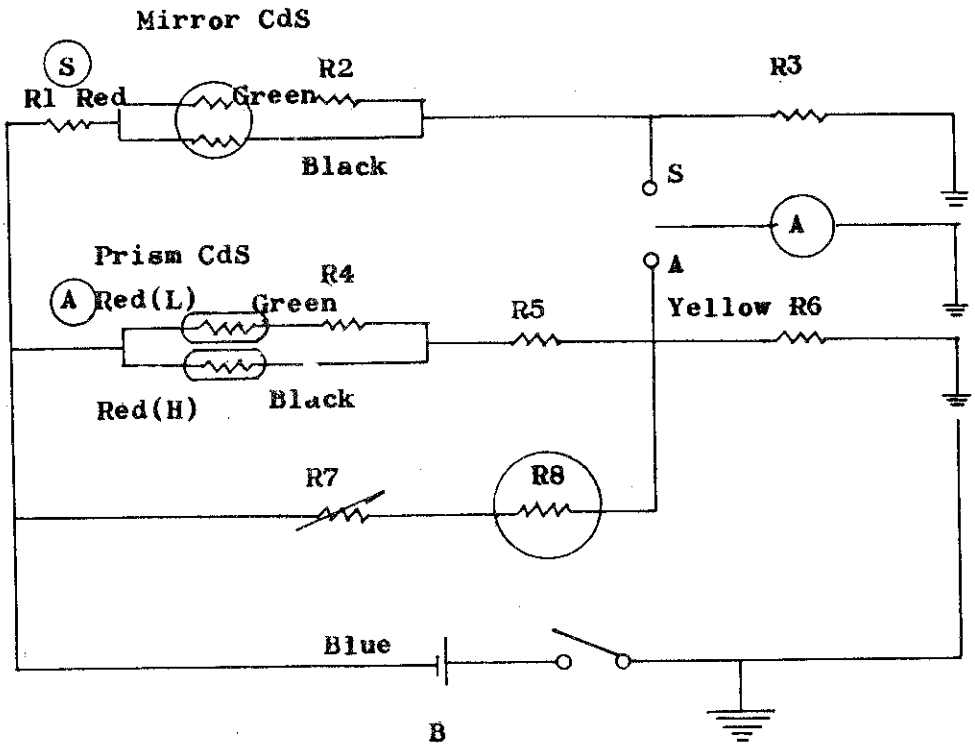
Secure the switch with 2953 (screw). Install TL1851 (front cover) after inserting TL1856 (switch cover) and TL1854 (indication plate); then secure TL2942 (switch cover) by using a small quantity of bonding agent (D.B bond).

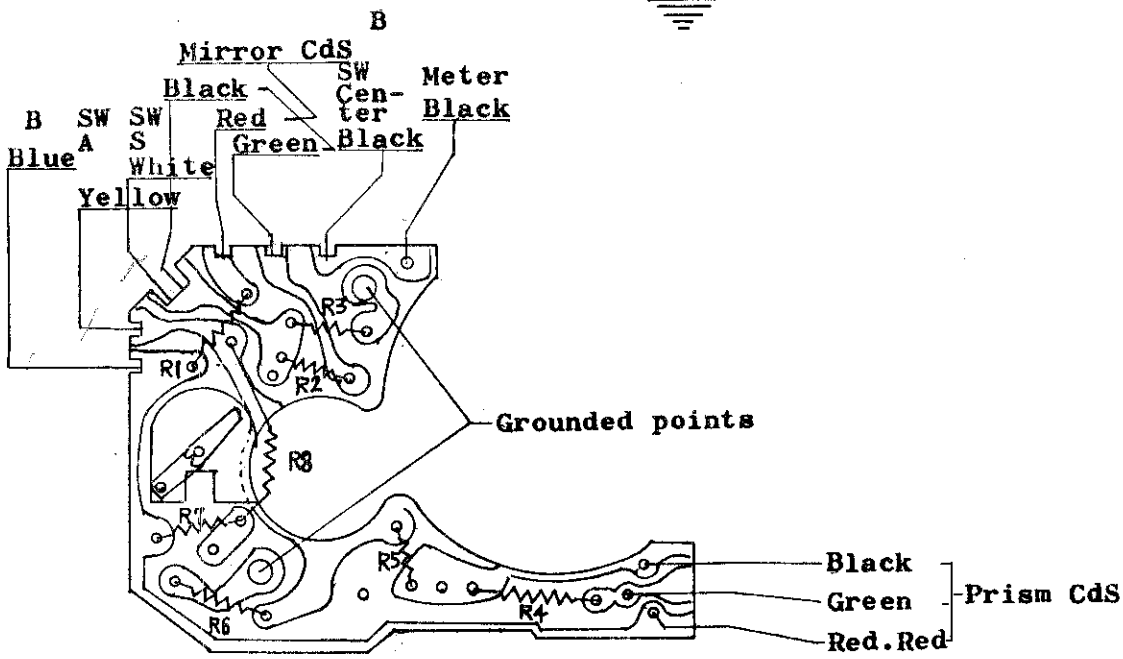
Wiring Diagram of DTL Exposure Meter (Old)





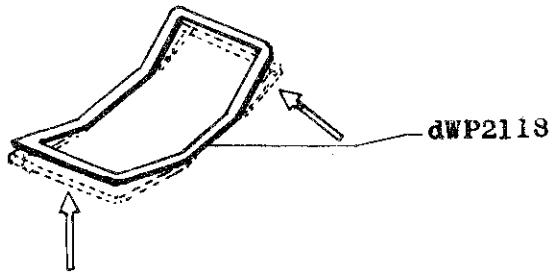
Wiring Diagram of DTL Exposure Meter (New)





V. Focus and light path

1. Remove relative parts for the top cover.
2. Remove dWP2112 (penta-prism), raise the A photometer and leave it in that position.
3. Remove dWP2126 (viewfinder frame).
4. Detach four 2.5Bsl.7x2BNi (screws) and remove NP2113 (penta-prism frame).
5. To remove TL2115K (condenser lens assembly), first detach four NP2119 (screws), then take out dWP2117 (condenser frame). When pulling out the two dWP2143 (rods) from the condenser frame, the condenser lens assembly can be removed from the condenser frame.
6. Next, take out dWP2118 (spring).
7. Installing the condenser lens assembly.
   (1) Insert TL2115K (condenser lens assembly) into dWP2117 (condenser frame) and secure it with two rods. In this case, be careful not to touch the condenser lens with the fingers. If the condenser lens surface becomes soiled, wipe it with alcohol, being careful not to scratch the surface.
   (2) Insert the removed dWP2118 (spring) into the mirror housing assembly after bending it to strengthen the spring force as shown in the diagram.



(3) Next, insert the condenser frame in the mirror housing, and tighten it with four NP2119 (screws). Since these screws are for adjusting the focus, do not fully tighten them. Merely screw them in until their heads are even with the upper surface of the mirror housing. Pay attention not to strike the meter pointer when inserting in the mirror housing.

(4) Next, install NP2113 (penta-prism frame) with four 2.5Bsl.7x2BNi (screws).

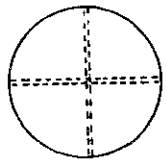
(5) Insert dWP2126 (viewfinder frame).

(6) Install the penta-prism. When installing it, remove all dust and position dWP2135 (penta-prism cover), then install it with dWP2114 (retaining spring).

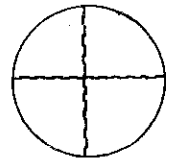
8. Adjusting the focus

(1) Adjusting method by using a ∞ collimator

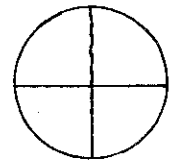
Place the camera on the collimator stand, collimate the camera, and adjust by evenly turning four NP2119 (screws) to coincide with the + (chart) of the collimator.



When focusing on ∞ (-), turn the four screws clockwise



When focusing on ∞ (+), turn the screws counter-clockwise

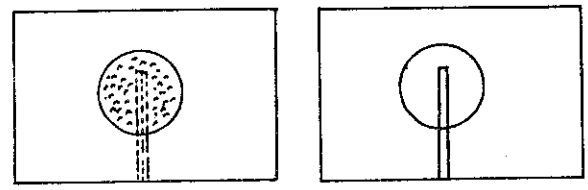


Using collimator

When focusing on ∞ upper (+), turn the screw on the side of eyepiece

9. ∞ adjustment when no collimator is available

(1) Adjust the camera by observing a vertical object such as a smokestack or a telephone pole at a distance over 300m. In this case, when the image does not coincide, the Diaprism will be blurred and the image doubled, so adjust it by the aforementioned method.



(2) After adjusting the focus, secure four NP2119 (screws) with Pliobond

(3) Reassemble the top cover and so on

VI. Mirror housing assembly

1. Disassembling, TL2100 (mirror housing assembly)

(1) Remove the top cover, front cover, and bottom cover.

(2) Remove the base plate assembly.

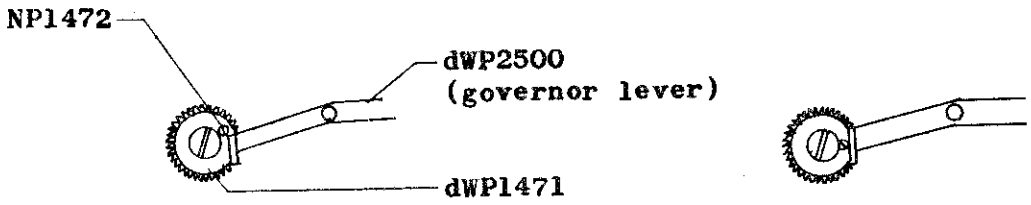
(3) Remove the winding base plate assembly.

(4) Remove the exposure meter.

(5) At first, scribe circumference of the mirror housing on the camera body with a scriber before removing the mirror housing. Detach dWP2926K2 (pulley assembly), TL2193 (screw), and two NP2199 (screws); then remove TL2100 (mirror housing assembly) by lifting it upward.

2. Reassembling the mirror housing assembly

(1) Before installing TL2100 (mirror housing), wind the wind lever and confirm that the position of NP1472 (pin) on dWP1471 (gear) is correctly located as shown in the diagram. If the position has slipped, remove cWP1473 (screw) and determine the position by sliding the gear and securing it. Use Diabond on the screw portion protruded from the base plate.



Pin position when wound

Pin position when releasing shutter

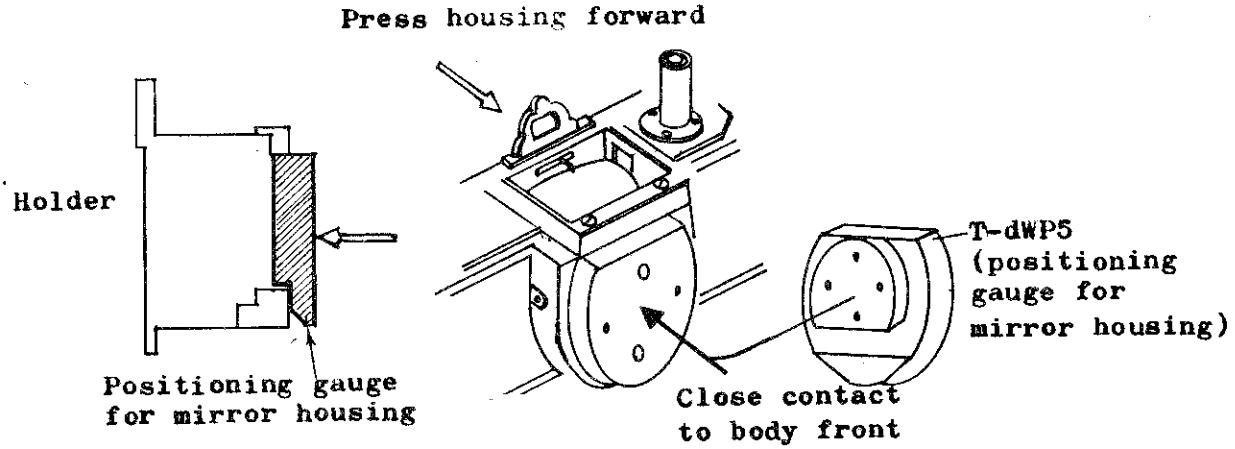
(2) Change of dWP2500 (governor) can be performed in this procedure.

(3) Change and repair of dWP1971K2 (diaphragm lever assembly) can be performed in this procedure.

(4) After finishing above inspection, gently insert the mirror housing into the body. This time, TL2331K2 (aperture coupling lever assembly) will strike dWP2194K2 (link plate assembly), so push the link plate forward by using the fingers during this operation. Also TL2171 (shutter release lever) strikes cWP1459 (pawl); so pull out the shutter release lever and set the mirror housing on the previously scribed line, and secure the mirror housing by using the detached pulley assembly and screws.

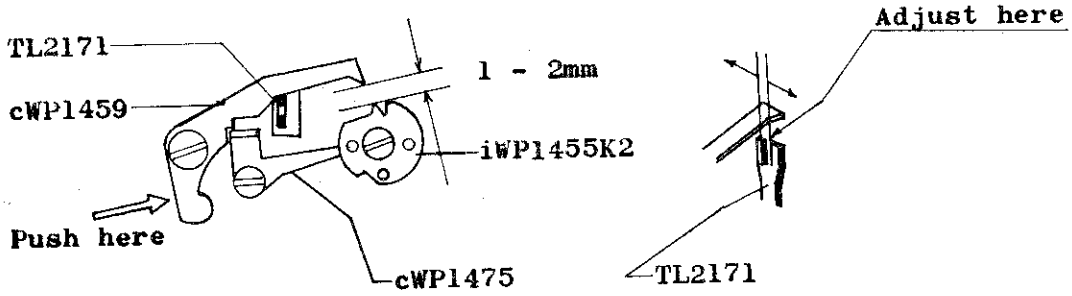
(5) Determining the position of mirror housing assembly

When the mirror housing is changed, the position cannot be determined by the scribed line , so use a positioning gauge for the mirror housing. Set T-dWP5 (gauge)in front of the body as shown in the diagram and press the mirror housing front against T-dWP5 (gauge), then determine the position; after that, tighten the screw.

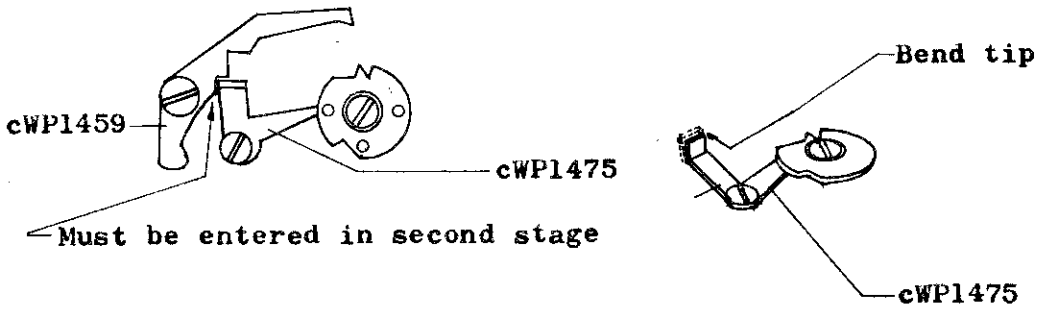


3. Adjustment of winding mechanism

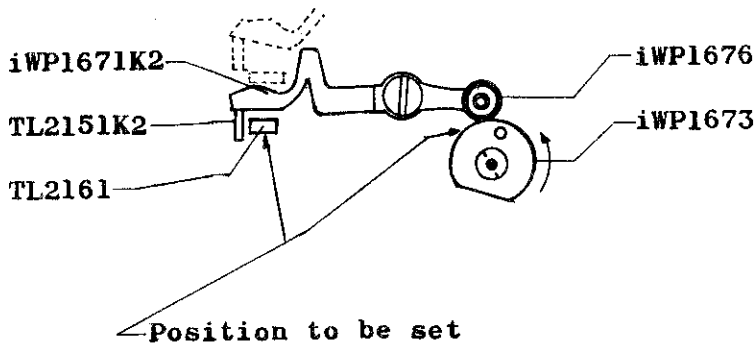
(1) Next, after reassemble the winding mechanism, wind the wind lever. Ascertain that the position of cWP1459 (pawl), when pushing it with the fingers as shown in the diagram, has a clearance of 1 - 2mm with iWP1455K2 (ratchet pawl). If this clearance does not exist, adjust the crack clearance of TL2171 (shutter release lever tip) to obtain the above-mentioned clearance.

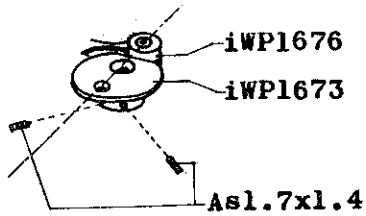


(2) Next, when winding the wind lever and releasing the shutter holding iWP1455K2 (ratchet wheel) with the fingers, cWP1475 (lever) must be positioned on the second stage of cWP1459 (pawl) as shown in the diagram. If not, bend the lever tip as shown in the diagram to obtain the above-mentioned condition.



(3) When winding the wind lever approximately one-half, TL2161 (release lever) must be positioned so that it pushes TL2151K2 (mirror lever assembly) away completely. If it cannot be so positioned, check the relative position of iWP1673 (cam mirror charging) with iWP1676 (collar) of iWP1671K2(mirror charging lever assembly). If position between the cam mirror charging and the collar slipped, adjust it by referring to the winding system.





Positions of
cam and collar

4. Reassemble the base plate assembly

   Check the shutter speed.

5. Reassemble the exposure meter unit

   Check pointer position of the exposure meter.

6. Reassemble the penta-prism

   Check and adjust the focus.

   Check the meter brightness.

7. Reassemble the top cover, bottom cover,and front cover.

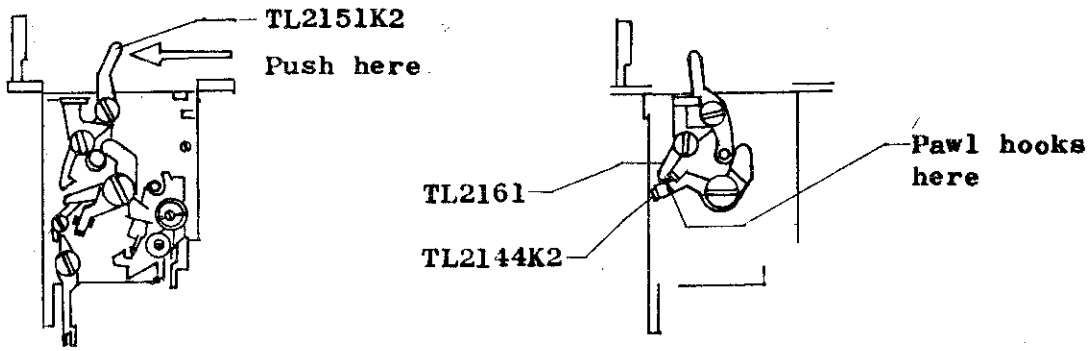
8. Checking TL2100 (mirror housing assembly)

   (1) When changing the mirror housing assembly, check structure of the mirror housing assembly before installing it on the body.

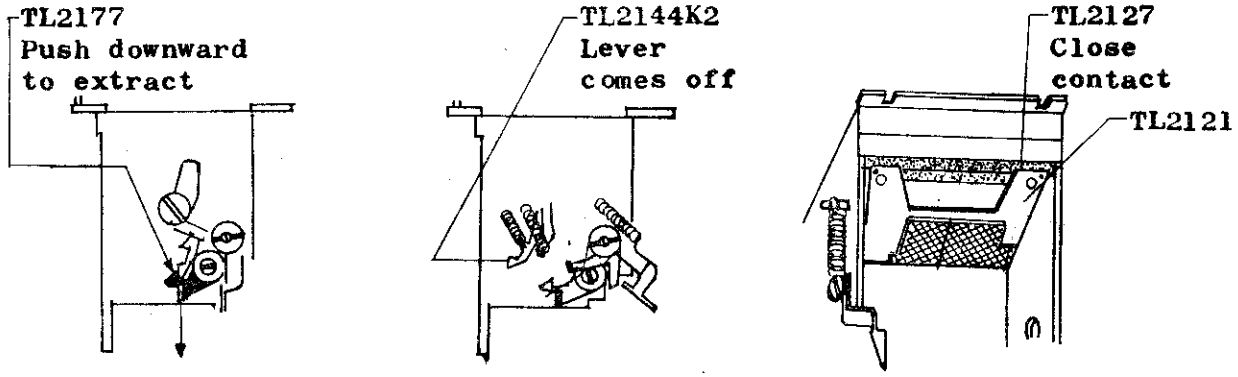
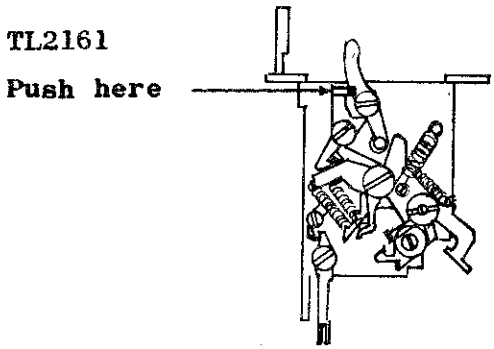
   (2) The following screws on TL2100 (mirror housing assembly) cannot be removed because they are caulked after tightening--TL2155 (screw), TL2164 (screw), TL2145 (screw), TL2334 (screw),TL2176 (screw), and cWP2192 (screw). If an attempt is made to remove

these screws, threads of the mirror housing body will be damaged. Pay attention to this precaution, please!

(3) Push TL2151K2 (mirror lever) as shown in the diagram and confirm that the pawl of TL2161 (release lever) hooks onto TL2144K2 (flip-up lever assembly).



(4) Next, when depressing TL2177 (diaphragm release lever), the lever of TL2144K2 (flip-up lever) comes off and TL2121K (mirror plate) flips up. This time, the mirror plate should be closely contacted with TL2127 (sealing sponge) by slightly pushing the sponge.



(5) Next, when pushing TL2161 (release lever) as shown in the diagram, TL2161 (release lever) and TL2144K2 (flip-up lever) will come off, TL2121K(mirror plate) will lower (finishing one operation), and each mechanism will return to its original position.
The above procedures are a method of checking the mirror housing assembly.